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WAR SERVICE AND PEACE SERVICE.

THE present War Service Committee of the American rubber trade represents a perfection of organization of which few industries can boast. In its personnel of more than one hundred men—leaders in rubber manufacture, in crude and reclaimed rubber, and in the distribution of the rubber products—it embraces every division of the industry. The committee, notable because of the accomplishments of its members in the normal fields of endeavor, is especially distinguished by the work it has done in putting the whole industry upon a war basis. It is no exaggeration to say that no half dozen industries combined offered so many perplexing problems or so many troublesome details, all of which were solved and adjusted with eminent fairness and in record time. With peace in sight the trade is faced with problems of even more gravity than those presented by the war, for upon their right solution depends its future.

It took from four to six months to put the rubber industry on a war footing. Now that it is thoroughly organized, and accustomed to working for the general good, it will be its own fault if many troublesome customs and handicaps of the past again come into existence. For example, individual initiative would not be hampered nor manufacturers injured if many partially obsolete types of goods were dropped, others standardized, and specialties given over to those who created them.

There is also in sight the very vital readjustment of labor and wages that will come as a part of the reconstruction. The cost of living will not become less for a time at least, and war wages are likely to be demanded and the strike threat freely employed.

It has been hinted also that international free trade may be one of the peace articles finally agreed upon. If Germany were democratized and repentant, it is hard to imagine Belgians and French weeping over the graves of the mangled babies, and buying German-made nipples. Nor can we conceive of British householders using German garden hose with its constant suggestion of flame throwers and poison gas. Even with custom houses abolished on all borders it would be years before German goods of any sort would find buyers. The result would be that the United States would become the dumping ground for everything German; for not having suffered in any such measure as our Allies, we would forget more easily. As in the past, the shopper would not know or care as to the origin of rubber goods provided they were attractive and reasonable in price.

On the other hand, for three years markets formerly supplied by England, France, Italy and Belgium became our own because of the war. It might, therefore, be unfair and impolitic to erect a tariff wall about our own country and still try to get the lion's share of the world's trade. It was just that temptation that led Germany down into the pit.

From the beginning, questions of many sorts are likely to fall to the War Service Committee for consideration. This is no surmise, for the Government has already indicated that upon just such committees will fall certain details of reconstruction. Many problems, however, are international in their scope and cannot be settled by any one country, no matter how strong or wise. If a league of nations is formed, scores of economic questions will be settled and some of them possibly to the disadvantage of the rubber trade. That is, unless it is alert in forecasting conditions and timely in its representations.

Looking at the matter broadly every country will be faced by similar problems. That decisions may be made after full knowledge and fairly, an international rubber committee created from the membership of existing rubber organizations representative of all the allied nations is therefore needed. America, the biggest, the best-organized, should take the lead in forming such a committee, calling conferences, and taking up questions in advance of the time of solution. The rubber industry, potentially one of the most important, should have its place, if not at the peace table, at least in the adjustment councils that settle after-war conditions. Such a committee might decide that the "right of self-determin-

ation" as relating to nations big and little may possibly belong also to corporations and to individuals. Then manufacturers and shipowners could give employment to whom they chose and workmen would be free to join unions or not without interference.

The rubber trade pays big freights on crude rubber, compounding ingredients and manufactured goods. Before the war German ocean lines delivered goods to certain markets at prices none could compete with because of governmental subsidies. Possibly the "freedom of the seas" contemplates a fair adjustment of rates that will do away with this evil.

Standardization as a result of the war necessity has made marvelous progress. Perhaps peace will demand international standardization. If this is toward the world's rubber trade it has much work before it, for in many lines it will be revolutionary.

Brazilian rubber producers, together with English, American, Dutch, French, Japanese and Belgian rubber planters, would have an unexampled opportunity to arrange for fair and adequate supply, standard grades, and perhaps come to some understanding as to minimum and maximum prices and restrictions of product.

German methods wherever they affect the rubber trade, the counterfeiting of trade-marks, the theft of patents, the sale of products at prices below cost, forced contracts with neutrals whereby German goods only shall be purchased for a period of years after the war, and plans of German manufacturers and exporters to use Swiss and other neutral registration for German goods, could easily be balked by an international committee.

Moreover, the international trade rivalries, misunderstandings and jealousies that are sure to crop up may be done away with through personal contact. America is coming out of the war the richest of all the nations involved. Nations rich and poor owe her billions. It is a dangerous position for any nation to be in. That is why the rubber and other trades should affiliate closely with their confreres the world over, and keep alive the spirit of friendship which the war has brought about.

BOOM IN RUBBER TO COME.

A TREMENDOUS expansion in American industry is sure to come, once peace is here and the problems of reconstruction settled upon. America's part in feeding the world assures prosperity for the farmer. Stocks in the hands of the wholesalers and retailers are small. Thus our domestic market will call for rubber goods as never before. Moreover, the shops of Europe are empty. Belgium, France, and indeed all of the Allies are short of goods. Then, too, Germany, Austria-Hungary with its new republics, Turkey and Russia, are sure to be in the market ere long. Great although the American rubber trade is, its capacity is likely to be tested to the uttermost.

PLANNING THE WORLD'S TRADE.

THE Teuton pre-war policy of industrial penetration was successful in enabling Germany to obtain an exceedingly dangerous hold on the chemical, dye, and other American Industries; on the Australian zinc industry; in securing a practical monopoly of wolfram, manganese ore, copra, oil seed, and practical control of the French bauxite mines. These are but a few of the instances of the burrowing methods that resulted in a stream of valuable imports pouring into Germany, and leaving again in a manufactured form to deluge the world. In 1913 the total imports amounted to almost seventy-three million tons, valued at some $2,750,000,000.

To-day Germany, staggering under huge debts, in spite of revolution, and facing a bitterly hostile world, still hopes for world domination. The great industries are, to be sure, for the moment, paralyzed. Even before the armistice few rubber plants operated, four-fifths of the textile factories were idle, while no less than one-third of the small plants had been closed. The merchant marine, too, was in sorry plight, two-thirds of the vessels seized or locked in neutral harbors, which more than offset the trade in the Baltic.

In addition to all this, German manufacturers are faced with grave labor problems. The demands of war, continually depleting their working forces, caused vacancies which were but partly filled, and even then by persons not only inferior in skill but also in general health. As for the returning soldiers it is doubtful if they will be the obedient bond-slaves they were prior to 1914. These adverse circumstances, however, have whipped the industrialists to unheard of endeavor.

A German union of technical and scientific societies aims at a closer cooperation between science and industry; there still remain the many consolidations in nearly all industries; there also is the ministry of economic affairs to reestablish foreign trade; the Eastern Territories Neo-German Economic Society; the association for the promotion of the export of German goods under guise of neutral products, and the huge combine to exploit various industries in foreign countries.

All of this is known to the Allies and there has been a general overhauling of pre-war trade tactics and a demand for protection of home industries.

France has decided to recast all old trade compacts and from April, 1919, will do business on equal terms. Her chemists and industrial leaders have joined forces to restore and enhance her commercial prosperity.

England is instituting a comprehensive system for inventorying the wealth of her colonies, with plans to make herself and them independent of foreign countries for any article raw or manufactured.

In America the work of building up new industries to provide goods formerly supplied by Germany has gone on apace. Much thought and labor is also being expended on the task of retaining and expanding the busi-

ness brought by the war. The same is true of Italy, Japan and to a smaller extent of the South American countries.

International Free Trade may be "sound," but at present it is not very loud.

CRUDE RUBBER A "KEY MATERIAL."

"KEY INDUSTRIES" are given much attention in Great Britain at present. For example, dye manufacture is the key industry to textile and paper production. Germany once possessed this key, but for various reasons was unable to use it from 1914 up to the present time. Pass-keys were therefore made in both Great Britain and the United States and the industries unlocked for all time.

Exhibitions of "Key Materials" are now on in various great English centers. Of the many materials shown, that of paramount interest is crude rubber. As matters stand, crude rubber actually is represented by several keys. Great Britain of course holds the biggest, the Dutch East Indies and Brazil each hold big ones, while those of lesser size dangle from the fingers of French Indo-China, the Central American countries, and a very tiny one from the Philippines.

Nor are we without rubber key materials here in the United States. Reclaimed rubber is one. Neither should we forget that the great g .ayule project goes on apace and will one day be a fairly sizable key. Take it all in all the crude rubber keys are in good hands and if any holders, for good and sufficient reasons, lock their doors, others will open the wider.

THE BAFFLING BOTANY OF RUBBER.

AT the Centennial Exposition of 1876, Austin G. Day, one of the most enterprising and successful of rubber men, showed a collection of "rubber-producing plants." The collection consisted of sixteen varieties, with the following names:

Ficus Brasiliensis	Brazil
Ficus lucidus	Brazil
Ficus macrophylla	Australia
Ficus Australis	Australia
Ficus elastica	East Indies
Ficus rigida	East Indies
Ficus religiosa	Palestine
Euphorbia monstrosa	Cuba
Euphorbia triangularis	South Africa
Euphorbia Mackaii	Java
Euphorbia splendens	Mexico
Euphorbia punicia	Mexico
Monstera deliciosa	Brazil
Galipia odoratissima (more correctly called *Cusparia*)	Brazil
Aralia Cookii	Brazil
Pereskia grandiflora	Mexico

Of all that list just one, *Ficus elastica*, has actually served as a commercial source of rubber. To be sure, nearly all the species of *Ficus* and *Euphorbia* bear latex, but few have furnished rubber which has been sold in the markets of the world.

The other four species belong to families which do not ordinarily produce latex at all, and no scientific authority includes either of them among rubber-bearing plants. All of which simply proves that Mr. Day knew more about rubber in the factory than in the tree.

Such a mistake is not at all surprising to one who reviews the assertions which have been made at different times by men of high rank as botanists. The Kickxia of Africa was described by the authorities of Kew Gardens in England from the leaves of one species and the flowers of another. An English botanist, sent to Central America to gather plants of *Castilloa elastica* for experimental cultivation in Ceylon, got a plant which may have been a species of *Perebea* or a species of *Castilloa*, but which certain was not *Castilloa elastica*.

Nor has the day of mistaken and careless naming gone by. Quite recently eminent authors have spoken of the Caucho rubber of South America as being the product of the *Castilloa elastica*. Yet it was long ago described in detail by Warburg as being the product of a very different tree, the *Castilloa Ulei*.

AT THE INDUSTRIAL CONFERENCE DECEMBER 3RD TO 6th there will assemble at Atlantic City the most representative body of business men that the world has yet seen. Called together by the Chamber of Commerce of the United States will be delegates from 300 groups of interests. The discussions will embrace the many and varied problems of reconstruction, as for example, cancellation of contracts, continuation of government control, labor, conservation, prices, credit and similar subjects. In all of these questions the rubber trade has a very live interest, and from the conclusions reached is sure to derive much benefit.

GERMAN PROPERTY IN THE UNITED STATES AND ITS Territories has been taken over and sold by the Alien Property Custodian. The money derived from the sales runs into hundreds of millions of dollars. Most of it is German money. If, however, an American can prove that any portion of it is his, he has the privilege of entering a claim for it within six months of the close of the war. It is possible also that war damages may also be settled from this fund, as part of the property sold once belonged to the sometime Imperial German Government.

TWENTY BIG CARS STRIPPED OF THEIR TIRES BY THIEVES in twenty days is the record of a Western city. As it is almost impossible to identify tires once stolen, owners are adopting the plan of branding both tires and tubes with their initials. This is of great assistance to the police in recovering stolen tires. Branding the thieves would be better.

War News of the Rubber Industry.

Relaxation of Regulation of Industries. Export License Procedure for Samples. Important Publications on Fuel Technology. An Industrial Reconstruction Conference. Liberty Loan Oversubscribed Nearly a Million. Cuba Oversubscribes Fourth Loan. Enemy-Owned Concerns to Be Sold. Basilan Plantation Taken Over. Bituminous Storage Limit Off. Withdrawal of Regulations Affecting the Exportation of Raw Cotton. The War and Brazilian Rubber. Some Raincoat Makers Acquitted. Rubber Men Active in War Work Drive. United War Work Fund Is $203,179,038. Christmas Presents for Hood Boys in France. To Serve Goodyearites in France. Service Notes and Personals. Letters from the Front. Why the Red Cross Needs Hundreds of Millions.

RELAXATION OF REGULATION OF INDUSTRIES.

FOLLOWING the signing of the armistice with Germany, the War Industries Board issued a new order, modifying restrictions and curtailments, of which we publish the section that interests our readers:

SECTION 3.

Restrictions upon industries and manufacturers in their production, or in their consumption of materials for commodities hereafter in this section enumerated, as such restrictions are expressed in orders and circulars issued by this Division, are hereby so modified that such restrictions for the respective periods provided for in such several orders and circulars shall be less than the restrictions to the extent of fifty per cent of such restrictions. The commodities referred to are (among others) as follows: clothes wringers, baby carriages, bicycles, hand stamping and marking devices, sporting goods, pneumatic automobile tires.

The production of tire manufacturers who have been operating on the basis of a 50 per cent curtailment of the monthly average for the eighteen months ended June 30, 1918, has, as of November 15, been increased to 75 per cent. All restrictions curtailing the production of rubber articles, except automobile casings and tubes under six inches, have been withdrawn.

EXPORT LICENSE PROCEDURE FOR SAMPLES.

The War Trade Board announces the following regulations governing the exportation of samples to be used in the solicitation of orders:

1. Samples of no commercial value of any commodity may be exported in the personal baggage accompanying a traveler without an individual export license, under special export license RAC-49, issued to the Customs Service. (See W.T.B.R. 195, issued August 13, 1918.)

2. Samples of no commercial value of commodities *not* on the Export Conservation List may be exported *by mail* without an individual export license, under special export license RAC-52 issued to the Postoffice Department, to the following countries: Abyssinia, Afghanistan, Argentina, Belgium, Bolivia, Brazil, China, Chile, Colombia, Costa Rica, Dominician Republic, Ecuador, Egypt; the colonies, possessions, and protectorates of Great Britain; the colonies, possessions, and protectorates of France; Guatemala, Haiti, Honduras; the colonies, possessions, and protectorates of Italy; Japan, its colonies, possessions, and protectorates; Liberia, Monaco, Nepal, Nicaragua; the colonies, possessions and protectorates of the Netherlands; Oman, Panama, Paraguay, Peru, Salvador, San Marino, Siam, and Uruguay, excluding any portion of the foregoing occupied by the military forces of Germany or its allies. (See W. T. B. R. 246; issued October 9, 1918.)

3. Samples of no commercial value of *any* commodity may be exported *by mail* without an individual export license, under special export license RAC-52, to the United Kingdom, France, Italy and Japan, their colonies, possessions, and protectorates, excluding any portion thereof occupied by the military forces of Germany or of its allies. (See W. T. B. R. 246, issued October 9, 1918.)

4. To facilitate further the exportation *by mail* of samples of no commercial value, when an individual export license is required, the War Trade Board, hereafter, will consider issuing licenses of a special type, valid for three months after issuance, permitting the exportation, by mail only, to one or more consignees, whose names need not be specified in the application for the license, of a single parcel or an unlimited number of parcels of samples of no commercial value to be used in the solicitation of orders. Such licenses will not be granted for shipments of samples to persons in enemy or ally of enemy countries; or to persons with whom, the applicant has reason to believe, trade is prohibited by the Trading with the Enemy Act. (For particulars regarding applications for licenses, see W. T. B. R. 280, issued October 25, 1918.

IMPORTANT PUBLICATIONS ON FUEL TECHNOLOGY.

Estimates made earlier in the fuel year that approximately 160,000,000 car miles, equivalent to a 5 per cent increase in production, would be saved in the coal year through the operation of the zone system for the distribution of bituminous coal are being more than realized. The nation's supply is now such that with patriotic economy it will probably be sufficient for the winter's requirements. There must, however, be frugality in the use of electricity, gas and coal, and intelligent firing of furnaces and stoves. To this end the United States Fuel Administration and the Bureau of Mines have issued numerous pamphlets and scientific papers on fuel technology and conservation which are of great value to the operator of every power plant, large or small. If all would substitute scientific methods for the haphazard practices which have too often been the rule, the possibility of shut-downs due to lack of fuel could probably be definitely averted.

AN INDUSTRIAL RECONSTRUCTION CONFERENCE.

A war emergency and reconstruction conference of the war service committees of the various American industries has been called by the Chamber of Commerce of the United States to be held at Atlantic City, December 4, 5 and 6. The subjects to be discussed include reconstruction; industrial relations; raw materials and their control; price control; economic legislation affecting combinations; export and import operations; finance, etc., and all information adduced will be placed at the command of the Government. The several war service committees, including that of the rubber industry, will confer with the commodity chiefs of the War Industries Board, and it is hoped that definite recommendations can be formulated covering the reconstruction period, with the possibility of creating an executive committee empowered to gather data and to function with industries to meet the many problems that the nation's industries will be called upon to solve with the end of the war.

LIBERTY LOAN OVERSUBSCRIBED NEARLY A BILLION.

Early estimates regarding the oversubscription of the Fourth Liberty Loan have proved to be far too conservative. Total subscriptions amounted to $6,989,047,000, or 16.4 per cent. more than the $6,000,000,000 sought to be raised. Every Federal Reserve District exceeded its allotted quota. It was the greatest war loan ever floated by this or any other nation. Through the four Liberty Loans and War Savings Stamps the country has raised a total of $17,852,000,000, not including unaccepted oversubscriptions.

Bonds of the Fifth Loan to cover the remaining war expenditures and to be offered in the spring, will be of short maturity, probably five years or less.

CUBA OVERSUBSCRIBES FOURTH LOAN.

Patriotic Cuba overscribed her $6,000,000 quota for the Fourth Liberty Loan by $4,752,850. There were 23,000 subscribers.

ENEMY-OWNED CONCERNS AND INTERESTS TO BE SOLD.

German owned or controlled interests in the following concerns are to be sold at public auction by the Alien Property Custodian A. Mitchell Palmer, in accordance with the Government's plans for their complete Americanization:

The Boonton Rubber Manufacturing Co., Boonton, New Jersey, manufacturer of composite insulation; The Bayer Co., Rensselaer, New York, manufacturer of drugs and dyestuffs, which includes the Synthetic Patents Co., owner of organic accelerator patents; the Goetze Gasket and Packing Co., New Brunswick, New Jersey, manufacturer of gaskets and packing devices; the Schaeffer & Budenberg Manufacturing Co., New York, manufacturer of engineering instruments; the J. P. Devine Co., Buffalo, New York, manufacturer of vacuum dryers; the Werner & Pfleiderer Co., Saginaw, Michigan, manufacturer of machinery; Robert Soltau & Co., Inc., Mamaroneck, New York, manufacturer of gutta percha specialties.

BASILAN PLANTATION TAKEN OVER.

The only *Hevea* plantation that is producing rubber and is in United States territory is the Basilan Plantation on Basilan Island, Mindanao, Philippine Islands. Most, if not all, of the stock was owned by Germans and has been taken over the Alien Property Custodian.

BITUMINOUS STORAGE LIMIT OFF.

All storage restrictions on bituminous coal were removed on November 22 by the United States Fuel Administration in conformity with the action of the War Industries Board in cancelling its preferential industries list. Anthracite coal is not affected, however, by this ruling.

Every industry and every householder in the country now may store as much bituminous coal as desired or obtainable, as the action of the War Industries Board removes the necessity for the Fuel Administration to distinguish longer among different classes of industrial plants.

The restrictions just raised provided for the accumulation by the consumers in the preference classes defined by the War Industries Board of reserve stocks of bituminous coal, in accordance with their location in relation to various mine fields and their classification on the preference schedule.

WITHDRAWAL OF REGULATIONS AFFECTING THE EXPORTATION OF RAW COTTON.

The War Trade Board, in cooperation with the Committee on Cotton Distribution of the War Industries Board, makes the following announcement:

On and after December 2, 1918, no individual licenses will be required for the exportation of raw cotton to Great Britain, France, Italy, Belgium or Japan. A special export license (No. RAC-57) will be issued to the proper customs officials at points of exit, who will be authorized to pass shipments in accordance therewith.

The regulation governing exports of raw cotton to Spain (W. T. B. R. 319, November 15, 1918), whereby the quantity exportable to Spain was limited and allotted among the various shippers, is withdrawn, effective November 22, 1918, and applications will be considered looking toward the granting of licenses freely.

Applications to export raw cotton to other destinations will be considered and granted freely, and where agreements exist, international licenses will be granted in accordance therewith.

The regulation affecting the exportation of raw cotton (W. T. B. R. 265, October 11, 1918), which required that the grade and staple be specified on applications to export raw cotton and that the applicant also disclose the existence of an actual sales contract, or that there had been a freight allotment or engagement, is withdrawn, effective November 22, 1918.

THE WAR AND BRAZILIAN RUBBER.

The great changes brought about by the world war, and the losses sustained by German traders in Brazil are reported by "Wileman's Brazilian Review," as follows:

Before the declaration of war by Brazil against Germany, in spite of all disabilities, enemy traders succeeded in shipping 12.7 per cent of the crop in 1915-16, 6.7 per cent in 1916-17, but only 176 tons, or 0.6 per cent in 1917-18, and even that insignificant quantity prior to the declaration of war by Brazil against Germany on October 26, 1917. Since then no enemy rubber has been shipped at all.

The way in which both Allied and Brazilian trade has benefited by the restrictions placed on enemy traders is shown by the progression of the coefficient of exports of Allied traders from 48.8 per cent of the crop in 1915-16 to 51.1 per cent in 1916-17, and 52 per cent in 1917-18, and of the coefficient of Brazilian and Portuguese exporters from 23.9 per cent in 1915-16 to 31.6 per cent in 1916-17 and 33.0 per cent in 1917-18, inclusive of small shippers practically all Brazilian or Portuguese.

The term "Allied" is used merely to distinguish between Brazilian and Portuguese and British, American and French shippers.

Before the war, German shippers accounted for 61.6 per cent of the crop and some idea of the losses their traders must have suffered can be gathered from contemplation of the now total suppression of this branch alone of their oversea trade.

Since the incorporation of Suter & Co. with Stowell Bros., the coefficient of British exporters has steadily improved from only 11.5 per cent (excluding Suter & Co.) for 1915-16 to 28.9 per cent (including Suter & Co.) for 1916-17 and 26.4 per cent for 1917-18. Among British houses Stowell Bros. now rank first with 19.2 per cent of the 1917-18 crop, followed by Suarez Bros. with 4.7 per cent, and Adelbert Alden with only 2.5 per cent against 7.5 per cent for 1916-17 and 6 per cent for 1915-16.

The only American house of importance, the General Rubber Co. of Brazil, likewise improved its position from 20.9 per cent of the 1915-16 crop to 20.4 per cent in 1916-17 and 21.1 per cent in 1917-18, the largest coefficient of all.

The French house of Fradelizi & Co. shows improvement from 0.5 per cent for 1915-16 to 2.4 per cent in 1916-17 and 4.5 per cent for 1917-18.

Exclusive of small unspecified shippers, the largest Brazilian-Portuguese exporter of the 1917-18 season was again Tancredo Porto with 6.8 per cent of the crop, as against 8.7 per cent for that of 1916-17 and 5.1 per cent in 1915-16. The next largest was J. Marques & Co., with 6.2 per cent, as against 14.4 per cent in 1916-17 and 11.8 per cent in 1915-16. Pires Teixeira and J. C. Araujo both lost ground, but two new comers, J. A. Mendes and Chamie & Co. (previously included among small shippers), accounted between them for 10 per cent of the crop, besides the Bank of Brazil with 3.0 per cent and "small" unspecified shippers with 6.6 per cent as against 6.7 per cent in 1916-17 and 12.7 per cent in 1915-16.

The improvement in the coefficient of transit rubber (Peru) from 2.4 per cent in 1915-16 to 5.3 per cent in 1916-17 and 7.8 per cent in 1917-18 is remarkable in view of the distance, over 1,000 miles, between Pará and Iquitos, now cut off from direct communication with either Europe or the United States.

Restriction of imports by the United States dates from May 6, 1917. During the first half of the 1917-18 crop, exports from the Amazon to the United States, in spite of the falling off of 1,000 tons in entries, were only 594 tons under those of the previous season. During the next half-year exports to the same destination show a tremendous shrinkage of 9,515 tons or 61.3 per cent compared with the same period 1916-17. It is a healthy sign to note that from 2,400 tons last year, receipts at Pará and Manaos dropped in July to only 620 tons and stocks from 8,145 on July 1 to 6,807 on August 1.

SOME RAINCOAT MAKERS ACQUITTED.

The Kenyon Co., Brooklyn, New York, charged with sending defective raincoats to the Army, was exonerated by the verdict rendered in its case on November 9, both as to the corporation and its employes. The blame for permitting defective raincoats of this company's manufacture to be sent to France is laid to the Quartermaster's Department of Army, since it was shown by the evidence that laxness of inspection therein created conditions worse than in the manufacturing establishments. Government inspectors were found to be untrained for the work and careless in inspection.

Harry E. Lazarus, another raincoat maker, on trial under the Sabotage Act, and also charged with having bribed Charles L. Fuller, an inspector of the Quartermaster's Department, to pass defective raincoats, was acquitted on November 19, for lack of evidence. Inspector Fuller, however, is under arrest and awaiting disposition of his case by Federal authorities.

RUBBER MEN ACTIVE IN WAR WORK DRIVE.

The United War Work Campaign of Greater New York was conducted last month for the purpose of raising funds for the following organizations:

Y. M. C. A., Y. W. C. A., National Catholic War Council (K. of C.), Jewish Welfare Board, War Camp Community Service, American Library Association, and the Salvation Army.

In this drive the rubber industry was represented by the following committee:

CHAIRMAN.

Bertram G. Work, The B. F. Goodrich Co.

VICE-CHAIRMAN.

F. E. Titus, The B. F. Goodrich Co.

DIVISION CHAIRMEN.

TIRES: Horace De Lesser, Ajax Rubber Co., Inc.

CRUDE RUBBER: W. J. Kelly, Poel & Kelly.

BOOTS AND SHOES: Homer E. Lawyer, United States Rubber Co.

MEDICAL RUBBER GOODS: S. H. Jones, United States Rubber Co.

MECHANICAL RUBBER GOODS: Henry Spadone, Gutta Percha and Rubber Manufacturing Co.

RECLAIMED RUBBER: Clarence H. Low, United States Rubber Reclaiming Co., Inc.

HARD RUBBER: F. G. Achelis, American Hard Rubber Co.

UNITED WAR WORK FUND IS $203,179,038.

On November 25 subscriptions to the United War Fund were announced as amounting to $203,179,038, or $32,679,038 in excess of the amount originally asked by the seven war relief organizations. This is the largest sum ever raised as an outright gift in the history of the world. Only two states, Pennsylvania and Minnesota, failed to exceed their quotas, and it is believed that these states will be "over the top" when returns from Philadelphia and Minneapolis are in. Philadelphia, a "war chest" city, has not yet made an appropriation to the fund, while Minneapolis postponed its drive until next month.

CHRISTMAS PRESENTS FOR HOOD BOYS IN SERVICE.

The War Relief Club of the Hood Rubber Co., Watertown, Massachusetts, has practically decided to send to Hood boys in service overseas a check for 20 francs ($4) with a Christmas folder, a Christmas card and Christmas letter. The boys can then buy what they need most. Hood boys in service in America will receive Christmas boxes costing $4 to $5 each. They will contain smoking materials, candy and a comfort bag of cretonne 12 by 14 inches in which will be found one pair of socks, two handkerchiefs, shoe strings, safety pins, pocket comb, safety razor, mirror, soap, pad paper, envelopes, pencils, knife, pipe, puzzle or toy, and a small towel. Two knitting machines have been installed for producing the 600 pairs of socks needed.

TO SERVE GOODYEARITES IN FRANCE.

The Goodyear Tire & Rubber Co., Akron, has opened an information bureau at 17 rue Saint Florentine, Paris, for the benefit of Goodyearites in service over there. Four rooms are occupied, one of which is a general reading and lounging room, with writing materials, magazines, newspapers, etc. An attempt will be made to keep a card index file of all Goodyear men in France.

SERVICE NOTES AND PERSONALS.

Robert L. Baird, son of Robert B. Baird and vice-president of the Rubber Trading Co., 9-15 Murray street, New York City, became a member of K Company, 23d Regiment, National Guard, in February, 1918. On October 2, 1918, he enlisted in the Officers' Training Camp, Field Artillery, Camp Zachary Taylor, Louisville, Kentucky, as a member of the 27th Training Camp. He is 29 years of age and has been an officer of the Rubber Trading Co. since 1912. Mr. Baird will remain in the service until he receives his commission.

ROBERT L. BAIRD.

William Wadbrook, son of Elston E. Wadbrook, has received from Congressman Ramsey, of the Sixth Congressional District of New Jersey, nomination for the Naval Academy at Annapolis, Maryland, having been successful in the recent open examination, under Civil Service rules, of candidates to fill this vacancy. Mr. Wadbrook attained the very high percentage of 94.80.

Captain Arthur H. Leavitt, a former employe of The B. F. Goodrich Co., Akron, Ohio, whose portrait appeared in our issue of September 1, 1918, was promoted early in October to the rank of major. He is with the Motor Transport Corps and returned from France shortly before receiving his promotion. Due to the recent signing of the armistice with Germany, Major Leavitt is now in Washington awaiting orders, although he had previously expected to return to France early in November.

W. H. Lacey, manager of the Hartford, Connecticut, branch of the Sterling Tire Corp., Rutherford, New Jersey, has been appointed a first lieutenant of the Motor Transport Division and is stationed at Raritan Arsenal, Metuchen, New Jersey, in the Ordnance Department.

William E. Housel, manager of the Rochester, New York, branch of the Sterling Tire Corp., Rutherford, New Jersey, has been appointed by the War Department a first lieutenant of engineers, stationed at Camp Humphreys, Virginia.

Captain Charles E. Speaks, who was formerly manager of motorcycle and, later, of truck-tire sales for the Firestone Tire & Rubber Co., Akron, Ohio, has recently been promoted to the rank of major in the Quartermaster's Department. He has had a long experience in the automobile and rubber-tire trade and will be a valuable man to the Government. Major Speaks is now in France, assisting in the rehabilitation of that devastated country.

Private Harvey Stickles, Headquarters Company, 166th Infantry, in France, for three years an employe of the Goodyear Tire & Rubber Co., Akron, Ohio, is one of the few Americans to receive the Distinguished Service Cross. During a bombardment he successfully repaired telephone lines connecting battalion with regimental posts, sticking to his work when others failed and narrowly escaping injury.

RUBBER MEN RETURNED FROM SERVICE.

Sergeant Walter Bardon, from October, 1914, until recently of the 1st Canadian Field Army, is now an inspector in the vulcanizing department of the Hood Rubber Co., Watertown, Massachusetts. Sergeant Bardon was presented a medal for distinguished service and honorably discharged as the result of a wound during the battle of Vimy Ridge.

S. A. Morrill, formerly Southern representative of the Davol Rubber Co., has been given an honorable discharge from the Army and has resumed work with the company. He is now located with the factory and home office in Providence, Rhode Island.

LETTERS FROM THE FRONT

HELPED TO BREAK THE HINDENBURG LINE.

Lieutenant Michael F. Cassidy, formerly with the United States Tire Co., New York City, describes the death of his brother, Lieutenant James H. Cassidy, both being sons of John J. Cassidy, manager of the United States Rubber Co., Detroit branch.

FRANCE, November 9, 1918.

DEAR FATHER:

No doubt long before you receive this, you will have been notified by the War Department of Jim's death. Know you are anxious for the details and will try and give them to you.

LIEUT. MICHAEL F. CASSIDY.

Our company went over the top Sunday morning, September 29th, at 5:50 a. m. We were in what is known as the first wave. Met terrible opposition, and had to fight for every inch. I was with Jim all the way until he was hit. We had been going about an hour. He turned to me before he fell, and said: "They've got me; good-bye, Mike." I picked him up and as we were under very heavy machine-gun fire, got him into a German trench, which we had just cleared. He was still alive. I cut his equipment off, and he tried to talk, but could not—died in a minute or two. He suffered absolutely no pain and died in my arms.

I saw all Jim did that terrible morning—he knew no fear. He sure was one brave kid—never hesitated, where some others did. He was afraid of nothing, and you have the honor of being the father of a hero. We had all been to Mass and Holy Communion the day before we went over, and of course Jim is in heaven now. Thank God he did not suffer a lot, as some of the other boys did.

I was buried shortly afterwards by a shell which burst near me and knocked me cold. It left small pieces of shrapnel in my back and both hands. I was taken to a base hospital and have been transferred here to a convalescent camp, and hope to be all right in a little while. I never can forget the terrible sights I saw that morning, until I was knocked cold, but of all the brave things done, none could touch what Jim did, always in front—he was the first man I saw who crossed the German trenches. Hero is a modest name for him.

Don't worry about me and write when you get a chance.

MIKE.

William Pierce, Jr., who before entering the service was employed in the factory of the National India Rubber Co., Bristol, Rhode Island, is reported missing in action since September 26. He was drafted last May, going to Camp Upton, and a few months later went overseas.

MARTYRS TO THE CAUSE OF LIBERTY.

LIEUTENANT JAMES H. CASSIDY, formerly with the shipping department of the United States Rubber Co., New York City, and son of John J. Cassidy, manager of the United States Rubber Co., Detroit branch, was killed in France September 29. His brother, Lieutenant Michael F. Cassidy, was seriously wounded in the same battle, while breaking the Hindenburg line.

LIEUT. JAMES H. CASSIDY.

Up to November 14 their father had received no word from the War Department of either casualty. Several newspapers printed a report of the death of Michael at a base hospital subsequent to the date of his last letter to his father. We all trust that this report is in error and that he will soon be home with our other gallant veterans.

Three more gold stars have been added to the service flag of The B. F. Goodrich Co., Akron, Ohio. N. W. Pancoast and Thomas Welker, both of whom were formerly employed in Department 50, were killed in action in the Argonne Forest region in France during September. Welker was one of Akron's football stars and Pancoast at one time won the Goodrich baseball championship through his pitching, besides being prominent in basket-ball and other sports. Albert E. Witzler, formerly in Department 41-B, has been reported killed in action also.

The honor roll of The Goodyear Tire & Rubber Co., Akron, Ohio, now has forty-two gold stars, the six last added representing Privates Chauncey W. Barr, Floyd D. Beveridge and Bruce C. Fultz, the last of whom had been in the employ of the Goodyear company for nine years prior to his enlistment, and Privates Earl Custer, Robert Daley and Leslie Pitkin. Custer was killed in the Argonne Forest drive and Pitkin near Sedan.

Frank Martin Backes, a member of the Sanitary Detachment, Medical Corps of the 113th Infantry, has been reported killed in action. Backes was for a long time employed as a tiremaker by the Essex Rubber Co., Trenton, New Jersey.

P. Frankenstein & Sons, Limited, waterproof manufacturers, of Newton Heath, Manchester, has lost its youngest director in the war, Second Lieutenant C. J. Frankenstein, son of Harry Frankenstein, having been killed in action in France.

Carl H. Drechsel, who was employed in the shipping department of the Alice Mill of the Woonsocket Rubber Co. at the time of his enlistment, is reported as missing in action since September 30, although a letter written by a Red Cross nurse dated October 11, states that he had been slightly wounded and was in a base hospital.

Why the Red Cross Needs Hundreds of Millions.

THE Army and Navy represent the will of the American people; the Red Cross represents the American heart. What the Red Cross has already accomplished in Europe will go down in world history to the everlasting credit of America, but what is being done out of sympathy for suffering humanity becomes insignificant in comparison with what duty calls upon us to perform for our own men and comrades in arms.

The American Red Cross has been a vital factor in winning the war. Its mission is primarily to alleviate suffering and restore health and strength to the sick and wounded at the front, but the present situation is so extraordinary that a great amount

(C) *Committee on Public Information.*

THE RED CROSS IN NO MAN'S LAND.

of other civilian relief work, at home as well as abroad, must be undertaken on a scale greater than the world has ever seen. This work presents to the whole people an opportunity and an obligation for sacrifice and service which every patriotic man, woman and child will gladly seize and generously fulfil. The cessation of hostilities will not diminish but rather increase the activities of the Red Cross, whose aid will be of vital moment in the great work of rehabilitation and reconstruction so urgently necessary in all the European countries.

The boys in our Army and Navy, 3,000 miles from home in a country partly devastated and sorely afflicted, must be assured of adequate medical attention and every possible comfort in the hour of need. Not only must doctors, nurses, ambulances, hospitals, medicines and vast quantities of supplies be provided, but a still broader humanitarian service must be undertaken. As long as it is necessary for our armies to remain overseas the Red Cross canteen service must be maintained in hundreds of hospitals, camps, railroad junction points and cities where the men go on leave. In these canteens hot drinks, sandwiches and tobacco are served and opportunities to bathe, sleep, read, play games or chat with the women workers are provided, all of which mean much to our boys and are regarded by army officers as of inestimable value in maintaining the morale of the men. Music and entertainments are also being abundantly provided in order to vanquish those dangerous foes, homesickness and temptation. Unlike the soldiers of England and France, our men cannot return to their firesides during short periods of relief from trench duty, and the Red Cross must often become the foster-parent of their dependent families.

Thousands of towns and villages have been destroyed in the various war zones. Millions of men, women and children are homeless and suffering for the barest necessities of life. They need clothing, agricultural implements, domestic animals, seeds, fertilizers, tools, bedding and stoves, which can be provided with Red Cross funds and distributed through Red Cross agencies. The spread of tuberculosis, now prevalent as a result of privation and trench warfare, must be checked to protect our armies. Humanitarian assistance of this character to hearten and strengthen the afflicted peoples of Europe will go far toward establishing law, order and stable government which pave the way for permanent peace.

Public interest in the rehabilitation of men disabled in battle has reached a high point. No longer will the responsibility of the army, the Government, or of industry cease by merely pensioning a man. He must and will be refitted to take perhaps even a higher place in the community than he occupied before his injury. A better education will be provided to offset the physical handicap, and it is the intention of the Government not only to pension every disabled soldier, but to teach him a trade whereby he can support himself adequately—if possible, a trade or employment in which his former experience will count. The Government will not discharge from the Army or Navy any crippled man until he has learned to be self-supporting.

A definite program has not yet been developed, but the Red Cross Institute for Crippled Men in New York City has taken the initiative in experimental vocational training and has demonstrated how the problem can be worked out. Men who have lost their legs are being taught the manufacture of artificial limbs, oxyacetylene welding, motion picture operating, mechanical drafting, printing and jewelry work, while those who have lost an arm are being supplied with new inventions which enable them to engage in a great variety of work.

It is to maintain the foregoing and many other forms of service to our fighting men and to their families through home service that the American Red Cross will conduct a Christmas roll call during the week of December 16 to 23. What finer message could be cabled to our boys on Christmas Eve than that virtually the entire American people have enrolled in the Red Cross. Such a message also would mean a wonderful inspiration to the civilian populations of Europe because it would show that the American people are no less responsive to the needs of their

THE RED CROSS CANTEEN IS A POPULAR SPOT WITH OUR BOYS.

fellow men in peace than in war. All anybody needs to answer to the Red Cross Christmas roll call is a heart and a dollar, but many larger contributions are needed.

The Red Cross is the most deserving charity of the times and merits every material assistance, active cooperation and constructive suggestion that individual or corporate beneficence can devise. Good use can be made of as much money as can be raised.

Activities of the War Service Committee of the Rubber Industry.

REGARDING ESSENTIAL RUBBER GOODS NOT LISTED.

ON October 29, 1918, the following notice was sent out by the War Service Committee.

To all rubber manufacturers:

Under date of October 11 all manufacturers were advised by telegram that the War Industries Board at our suggestion had ruled that pending decisions on application for classification of rubber articles as listed in issue No. 1 of "Regulations Governing the Production of Rubber Products," articles of unquestioned essentiality not listed might be produced to November 1 for current requirements.

The War Industries Board now advises that this ruling has been extended to November 11. After that date regulations published in issue No. 2 will govern production.

These regulations appeared in our issue for November 1, 1918.

REPLACEMENT OF RUBBER ON DIRECT GOVERNMENT CONTRACTS.

The War Service Committee notified all rubber manufacturers on November 4 that when executing the manufacturer's report to the Bureau of Imports, War Trade Board, requesting replacement of rubber used on direct government contracts, the report should state amount in pounds, *dry weight*, of crude rubber consumed.

W. S. C. QUESTIONNAIRE NO. 25.

At the request of the War Industries Board, the War Service Committee, on November 7, advised manufacturers that the naphtha situation was most serious. The Board had practically decided to limit the production of naphtha to aviation gasoline for government uses only and to motor spirits. No drastic action will be taken, however, until the requirements of the industry are known. To that end W. S. C. Questionnaire No. 25 requests a report from manufacturers on the grade and gallons of naphtha consumed from January 1 to November 1, 1918; estimated consumption for November and December, 1918, and gallons necessary to complete present government contracts. Manufacturers of tires, tire sundries, mechanical goods, footwear, insulated wire, insulating compounds, medicinal and surgical goods, waterproof cloth, waterproof clothing, hand-rubber goods, gas defense products, aircraft material and rubber cement, are requested to give their monthly production of government and other essential work; monthly production of government and other essential work if motor spirit only was available; monthly production of government and other essential work if only 68-70-degree and below was obtainable.

LETTER RELATING TO RUBBER PRODUCTS REGULATIONS.

November 9, 1918.

To the rubber industry:

Acting under the instructions of the War Industries Board the rubber industry is advised that until otherwise instructed they must operate in conformity with Issue No. 2 of "Regulations Governing the Production of Rubber Products," dated November 1, 1918, except that the production of all articles *not listed* in issue No. 2 and all articles on which rulings have been asked is permitted in such quantities as are required to meet the demands of the current trade.

Any rulings made since the publication of Issue No. 2 are hereby suspended. The requiring of pledges from customers is still held in abeyance in conformity with our letter of October 26.

WAR SERVICE COMMITTEE.

COMMITTEE ADVISES OBSERVANCE OF RESTRICTION RULES.

November 9, 1918.

To the rubber industry:

Acting under the instructions of the War Industries Board, the rubber industry is advised that until otherwise instructed no manufacturer should assume that because of an armistice being signed the industry will be permitted to operate without restrictions. *This is not so.*

The conditions incident to making peace are such that in all probability a careful control and restriction of imports and consumption of raw materials and production of finished goods must continue for a number of months. Therefore it is important that each manufacturer shall conduct his business with such care as will insure complete cooperation with the War Trade Board, Shipping Board, War Industries Board and all other government departments.

WAR SERVICE COMMITTEE.

W. S. C. QUESTIONNAIRE NO. 25 WITHDRAWN.

NOVEMBER 18, 1918.

To all rubber manufacturers:

The Rubber Section of the War Industries Board has informed us that due to changed conditions, it will not be necessary for manufacturers who have not already answered Questionnaire No. 25 relating to naphtha consumption, to do so.

We wish to impress on manufacturers, however, that it will be necessary for them to answer all of the other questionnaires, and trust that they will send their answers in to us at their earliest convenience.

This is especially important to the rubber industry as these figures may form strong arguments for obtaining relief from present restrictions.

WAR SERVICE COMMITTEE.

REGULATIONS GOVERNING PRODUCTION OF RUBBER ARTICLES WITHDRAWN.

The following telegram dated New York, November 19, 1918, was received on November 20:

The War Industries Board instructs us to announce that all restrictions curtailing production of rubber articles in accordance with Issue No. 2, Regulations Governing Production of Rubber Articles, dated November first are withdrawn. This ruling permits the production without restriction of all articles listed in classes two and three; also articles not listed except automobile casings and tubes under six inches, on which we are advised Rubber Section has sent tire manufacturers revised production schedule for the remainder of this quarter.

WAR SERVICE COMMITTEE.

RUBBER SECTION OFFICE NOW IN WASHINGTON.

The Rubber Section of the War Industries Board is now located in the War Industries Annex building, Washington, D. C., to which all communications should be addressed.

ACTIVITIES OF THE RUBBER ASSOCIATION.

SINGAPORE GOVERNMENT PRESCRIBES BALED RUBBER.

THE following letter, dated November 4, 1918, was sent to rubber importers and manufacturers by the Committee on Rubber and Kindred Products:

The following cable has just been received from the Overseas Committee of the Rubber Association of America:

> Singapore Government regulations pressing come into force November 15, sheets 220 pounds, crêpe 165 pounds, five cubic feet.

From this it will be noted that the Singapore Government has taken the initiative in making the closer form of packing (announcement of which was brought to your attention in our letter of March 23) a compulsory regulation.

We construe the weights mentioned as being the minimum, which after November 15 must be packed in the unit of five cubic feet (the usual size of a rubber package).

ANNUAL MEETING AND BANQUET.

The nineteenth annual meeting and banquet of The Rubber Association of America, Inc., will be held January 20, 1919, at the Waldorf-Astoria, New York City.

This will probably be one of the most important meetings ever known in the history of the trade, and a large attendance is confidently expected.

Chairmen of the War Service Committee of the Rubber Industry.

BERTRAM G. WORK
CENTRAL COMMITTEE

P. W. LITCHFIELD
AIRCRAFT DIVISION

E. S. WILLIAMS
MECHANICAL GOODS DIVISION

CHARLES T. WILSON
CRUDE RUBBER AND KINDRED PRODUCTS DIVISION

FRANCIS H. APPLETON
RECLAIMED RUBBER DIVISION

J. W. THOMAS
SOLID TIRE DIVISION

G. M. STADELMAN
PNEUMATIC TIRE DIVISION

GEORGE H. MAYO
BOOT AND SHOE DIVISION

N. LINCOLN GREENE
CLOTHING DIVISION

E. H. HUXLEY
FOREIGN TRADE DIVISION

DR. W. C. GEER
GAS DEFENSE DIVISION

W. S. CLARK
INSULATED WIRE AND CABLE DIVISION

H. WEIDA
HARD RUBBER DIVISION

A. W. WARREN
MEDICAL RUBBER GOODS AND SUNDRIES DIVISION

Portrait of H. E. Raymond, Chairman of the Railway Supplies Division, is not available.

CONSERVATION OF TRANSPORTATION.

In a letter dated November 9, the Traffic Committee directed attention of firm members to the following bulletin issued by the chairman of the War Industries Board and relating to the conservation of transportation facilities:

To all merchants and manufacturers in the United States:

Under present conditions it is obvious that the transportation facilities of the country must be conserved in every practical way in order that the movement of troops, supplies, munitions and shipbuilding materials may be unhampered. The situation demands that all needless and wasteful use of shipping space be eliminated.

It appears that one of the burdens which can and should be removed is the unnecessary return of merchandise from merchants to wholesalers and manufacturers. This double transportation of goods to and from the purchaser meets no essential need but results in waste. To remedy this situation, therefore, retailers, wholesalers and manufacturers in every industry and trade are earnestly requested to cooperate with each other for the elimination of all unjustifiable returns of merchandise.

This request is not intended to interfere with the return of merchandise when there has been an error on the part of the seller as to price, style or quality, misinterpretation of order, unauthorized substitution, or when merchandise is inferior or not up to sample. When goods are delivered "as bought," however, they should not be returned to the seller. If merchandise is to be returned because of substitution or error of any kind, notice should be given by the purchaser, within ten days after the receipt of the goods, that return is intended. Ample time should, of course, be allowed for explanation or proffered adjustment.

Salesmen should make "definite" sales only. In their travels, furthermore, they can be of particular assistance by enlisting the cooperation of their customers for careful selection and purchase of merchandise so that returns will be unnecessary.

Whole-hearted compliance with this request in the spirit of husbanding our resources and eliminating waste of transportation, materials and labor will be a substantial contribution by the merchants and manufacturers of the country to our general welfare and the success of the war program.

CONSERVATION DIVISION, WAR INDUSTRIES BOARD.

INCREASE IN TONNAGE OF RUBBER LICENSED.

The Committee on Rubber and Kindred Products sent the following letter, dated November 21, to rubber importers and manufacturers:

The amount of rubber that may be licensed for the present quarter of October-December has been increased from 25,000 tons to 32,500 tons, as per advice received from the War Trade Board, copy of which follows:

November 20, 1918.

Rubber Association of America, Inc.:

Supplementing our letter dated September 23, the quantity of rubber for which import licenses may be issued by the War Trade Board during the October-December period has been increased from 25,000 to 32,500 tons. The additional 7,500 tons will be allotted to manufacturers in Class B, under subdivisions 1, 2 and 3 on basis of an amount equal to 75 per cent of their previous allocation for this period; and to manufacturers in Class C, on basis of an amount equal to 33 1/3 per cent of their previous allocation for this period; but only to manufacturers in either class who have furnished information as to production and consumption called for in questionnaires to date and who have conformed to regulations governing production since August 1, 1918, as announced by War Trade and War Industries Boards.

Provision will also be made for allocation to manufacturers who were not in production previous to August 1, 1918, and they will receive allocation to conform with production as authorized by the War Industries Board.

This additional allocation to be granted may be used for importation of crude rubber from any source.

WAR TRADE BOARD.

The Bureau of Imports advise they will issue allotments in accordance to manufacturers, for this additional 7,500 tons, which may be used for the importation of crude rubber from any source.

We are directed also to remind importers and manufacturers of the statement in letter of September 23 to the effect that manufacturers must utilize the full amount of their allocations before any allotment will be made them in succeeding periods.

(Editor's Note:—Details of crude rubber allocation for the October-December period were published on pages 13-14, in THE INDIA RUBBER WORLD, October 1, 1918.)

CLOTHING DIVISION MEETING.

The Clothing Division of the War Service Committee of the Rubber Industry held a meeting at the Yale Club, New York City, November 20, at which all the manufacturers in that division were represented. N. Lincoln Greene, the chairman of the committee, presided.

The meeting was held to consider the future of the organization, as the War Industries Board, of which this body was a part, would cease with the termination of the war. As explained by George B. Hodgman, of the Central Committee, a convention of the rubber trade will probably be held in New York City about the middle of December, at which it would be decided to continue permanently, following the plans already started by each committee, even though the Central Committee and the War Service Committee were dissolved.

It was therefore voted that a committee be appointed to make recommendations as to the advisability of forming a permanent organization, the chairman appointing thereon S. T. Hodgman, of the Hodgman Rubber Co., and W. H. Yule, of The B. F. Goodrich Rubber Co.

It was voted to continue the Manufacturers' Chart of Calendered Rubber Clothing, with some revisions made that day, up to and including June 1, 1919, with the understanding that a meeting be held 30 days prior to that date, for a readjustment, if necessary. All restrictions on double and single texture rubberized clothing was removed, but each manufacturer is to make special effort, along the lines of conservation, to restrict styles as much as possible. No restrictions, however, are to be enforced on styles in either class for export.

It was decided that the committee as a whole should apply for membership in and reorganize under The Rubber Association of America.

CRUDE RUBBER STOCKS OF SEPTEMBER 30, 1918.

The following letter was sent to the rubber trade on November 19:

By direction of the War Trade Board, statistics of crude rubber stocks as of September 30, 1918, were collected from the rubber trade in the United States by The Rubber Association of America, as per the questionnaire sent out at the time to both importers and manufacturers. We are now authorized by the War Trade Board to make these figures public.

Manufacturers reported the following tonnage on hand September 30, 1918:

	In Stock.	In Transit.	Afloat.	Totals.
Crude rubber	34,934.0	15,301.7	1,420.5	51,656.2
Jelutong	1,956.8	54.6	.....	2,011.4
Gutta percha	36.0	10.5	.....	46.5
Balata	191.6	16.8	.....	208.4
Gutta siak	758.2	52.2	.....	810.4
Totals ..... *tons*	37,876.6	15,435.8	1,420.5	54,732.9

Importers reported the following tonnage on hand September 30, 1918:

	In Stock.	In Transit.	Afloat.	Totals.
Crude rubber	7,425.2	5,487.8	8,983.6	21,896.6
Jelutong	256.0	144.0	.....	400.0
Gutta percha	5.1	.....	164.0	169.1
Balata	109.0	4.5	13.9	127.4
Gutta siak	31.5	21.0	.....	52.5
Totals ..... *tons*	7,826.8	5,657.3	9,161.5	22,645.6

The total tonnage for both manufacturers and importers is as follows:

	In Stores and in Stock.	In Transit and Afloat.	Totals.
Crude rubber	42,359.2	31,193.6	73,552.8
Jelutong	2,212.8	198.6	2,411.4
Gutta percha	41.1	174.5	215.6
Balata	300.6	35.2	335.8
Gutta siak	789.7	73.2	862.9
Totals ..... *tons*	45,703.4	31,675.1	77,378.5

Broad American Maritime Policy Needed.

WITH its principal raw material coming from the tropics overseas in ships, and an increasing amount of its manufactured product being exported to foreign lands, the rubber industry, the fifth largest in America, realizes that the development of a broad and sound American maritime policy is of prime importance to the national welfare. Its interest in the fifth annual meeting of the National Foreign Trade Council, held at the Biltmore Hotel, New York City, November 8, requires no further explanation.

The National Foreign Trade Council is made up of representatives of every factor of foreign trade, industrial, agricultural, commercial, financial and transport. It represents every section of the country, and among those present at the annual meeting were men from the Pacific Coast, the South, the Middle West, and New England, as well as from New York City, the rubber industry being represented by E. H. Huxley, president of the United States Rubber Export Co.

A declaration against an economic warfare after the war, and a strong pronouncement in favor of the adoption of a national maritime policy that will permit the permanent retention and operation of the newly constructed American merchant fleet under the American flag were the distinguishing features of this meeting.

The chairman of the council is James A. Farrell, president of the United States Steel Corp. In his address presenting the report of the committee on merchant marine, of which P. A. S. Franklin, Robert Dollar and himself were the members, he discussed some of the problems facing this country as a result of the war and of the restoration of peace.

NO ECONOMIC WARFARE.

"The progress of the war," he said, "has been marked by much discussion of proposals for and conditions of a continuation of the contest by economic forces after the military struggle is ended. Our supreme duty is to see to it that the peace terms render impossible the continuance of conditions sought to be corrected or prevented by economic warfare. If the peace is satisfactory, there will be no need for economic warfare. If the peace is not satisfactory, economic warfare will be possible. It is for us then rather to devote our fullest effort now to insuring the enforcement of an adequate, just, and final peace. With such a peace we can go forward in confidence to meet and solve the numerous and intricate problems certain to arise from the complex and novel conditions naturally flowing from the cataclysm that has overwhelmed the world during these last four years."

NEW COMMERCIAL TREATIES.

Mr. Farrell referred to the importance of the negotiation of new commercial treaties which will be necessary promptly after the conclusion of peace, and declared that the first problem of reconstruction will be that of the merchant marine. He emphasized the importance of arriving promptly at an effective solution of this problem.

"We are building the ships," he said, "which will be the most effective agency in the permanent solution of the great after-war problem; always provided, however, that our nation adopts a definite maritime policy which will permit the permanent retention and operation of these vessels under the American Flag."

CONSTRUCTION PROGRAM SHOULD CONTINUE.

The report emphasized the importance of continuing the present accelerated construction program of the Shipping Board for a considerable time after the war in order to complete cargo and passenger-carrying ships aggregating about 14,000,000 gross tons, which will not only restore the world's tonnage losses, but amply meet the needs of American foreign trade.

Discussing the essential factors in the furnishment and operation of ships—the cost of capital, the cost of construction and the cost of operation—the committee concluded that so far as costs of capital and of construction are concerned, the United States will not be disadvantageously situated after the war compared with other maritime nations.

COMPETENT CREWS ESSENTIAL.

The report then says:

"No one contends or believes that it is not desirable to have American vessels fully manned by competent crews and to have American seamen enjoy the best possible conditions of life and service, and receive in wages due and ample return for their labor. But it is perfectly obvious that provision of law which requires American vessels to maintain larger crews, and to pay them higher wages than is the case with foreign vessels, necessarily subject such American vessels to a disadvantage which renders it difficult if not impossible for them to continue in operation against the competition of foregn vessels which can operate at lesser cost."

DEFINITE MARITIME POLICY NEEDED.

Summing up the whole matter, the committee says, "The United States, then, will emerge from the war with a large merchant fleet and with the facilities for its renewal and expansion, but unless positive steps are taken in the very near future toward the formulation and adoption of a sound national maritime policy, it may be set down as absolutely certain that these newly constructed American vessels will not remain in operation under the American Flag and that the American merchant marine, rehabilitated with vast expenditure of capital and effort as a war emergency measure, will again be dissipated under the operation of inexorable economic laws.

PROFITABLE OPERATION MUST BE ASSURED.

"We cheer the acquisition of the new fleet and we applaud the energy of the Shipping Board and the tireless industry of the thousands of workmen in the mills and shipyards who have brought it into being; but our cheers will be idle and our enthusiasm and energy will have been wasted unless before the day arrives for the renewal of competition that is bound to follow the restoration of peace, we have formulated and adopted a policy based upon honest recognition of fundamental economic principles, which will enable us to meet that competition with our new American ships, under the American Flag, with honor and with profit to ourselves and without injustice or unfairness to our competitors. It is most important that the American should face his competitors under equal conditions. All that is needed is a fair field and no favor. As an incident of the international agreement and settlements soon to be worked out, the maritime nations should agree upon uniform regulations which will impose equal conditions and requirements upon all alike. Such an arrangement would insure that equality which will give every one a fair chance."

INTERNATIONAL AGREEMENT SOUGHT BY HURLEY.

It is understood that Edward N. Hurley, chairman of the Shipping Board, who sailed for Europe November 16, plans to seek an international agreement between the governments, shipping interests and labor organizations of the principal maritime powers for standardization of seamen's wages and working conditions. He will probably propose that the American laws and the agreements between the governments and the seamen's unions on these subjects be accepted as the standards and include that

the American Federation of Labor and the British Seamen's Union are prepared to support the proposal.

BRITISH *vs.* UNITED STATES SHIPPING.

Although there is no immediate prospect of a resumption of normal shipping activity great interest is being manifested in the coming competition for control of the world's carrying trade, an interest which has been considerably heightened by the sudden termination of the fighting. Great Britain and the United States are regarded as the chief competitors, but Great Britain has the advantage in the amount of tonnage owned, the trained men and experience, and the fact that she will be able to resume much of her pre-war shipping before the United States will be in a position to enter the field on a large scale.

American initiative will offset these disadvantages to a considerable degree, but the great handicap lies in bringing back our great armies overseas. The burden of feeding Europe, will, of course, fall heavily on both the British and American merchant marines, but the task of transporting returning troops and of supplying those that remain abroad is greater in the case of the United States. The expectation is that the transatlantic liners under the British flag may be called upon to perform the dual service of transporting food to England and bringing American troops home. But in the main, it is agreed that the American army will be brought over in American bottoms, many cargo vessels being converted for this purpose.

Chairman Hurley of the Shipping Board says: "Only a limited portion of the shipping which can be constructed by us in 1919 will be available for use in ordinary commercial channels." In contrast to this is the statement by the agent here of a British company operating a New York-South American service: "We are looking forward to the gradual return of our tonnage and we hope it will be soon."

Another point of the greatest importance is that Great Britain has definitely announced a policy of "hands off" as soon as conditions will permit, while the United States has so far not indicated its intentions further than that the Emergency Fleet Corporation will carry its shipbuilding program to completion. Bonar Law, Chancellor of the British Exchequer, has declared that the British government does not contemplate nationalization of shipping after the war and some government ships have already been offered for sale to private interests.

The British shipowner, it is felt, can look forward with greater confidence to the future. He will be first in the field and may easily gain a long lead. The United States must plan very carefully if this is to be prevented. Certainly, the day when restrictions on British shipping are removed, the bars must be let down by America also.

CONVENTION OF AMERICAN MANUFACTURERS' EXPORT ASSOCIATION.

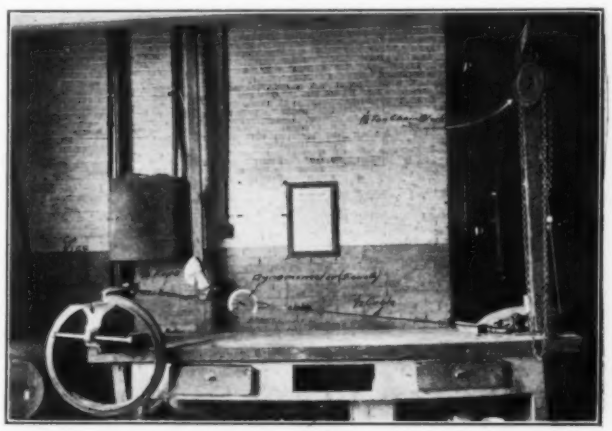
THE ninth annual convention of the American Manufacturers' Export Association was held at the Waldorf-Astoria Hotel, New York City, on October 30 and 31. hundreds of delegates taking part in the proceedings. Among the members of the board of directors are the following: F. A. Seiberling, the Goodyear Tire & Rubber Co.; F. A. Taylor, S. S. White Dental Manufacturing Co.; E. M. Herr, Westinghouse Electric & Manufacturing Co. Rubber companies were to the fore at the convention. D. L. Brown, export advertising department, the Goodyear Tire & Rubber Co., Akron, Ohio, spoke on foreign advertising; Frank H. Taylor, president, S. S. White Dental Manufacturing Co., Philadelphia, dealt with the subject of the new type of foreign representative; J. F. Foyler, W. R. Grace & Co., New York City, read a paper on the export merchant; C. J. Warren, export manager, H. W. Johns-Manville Co., New York City, presided at the session at which sales organization abroad was discussed; F. B. Whitney, of the committee on commercial treaties and trade marks, reviewed the history and present position of the treaty situation in a comprehensive manner; and M. A. Oudin, foreign manager, General Electric Co., Schenectady, New York, outlined what is needed in the development of foreign trade service.

THE GOVERNMENT'S PNEUMATIC TIRE TESTS.

Commencing December 1, the Government will purchase pneumatic tires on a specification basis. Space not being available for the work at the rubber laboratory of the Bureau of Standards, Washington, D. C., part of the laboratory at the University of Akron, Akron, Ohio, will be used for the chemical analyses necessary on specification work for all tires manufactured in the Akron district and west of Akron. The remainder will go to the Bureau of Standards, Washington, D. C. The necessary physical tests on the tires will be made by inspectors at the various plants and will be checked by results obtained in the physical rubber laboratory of the Bureau in Washington. The Akron branch will be in charge of S. W. Epstein, while Arnold H. Smith will direct the work at Washington. A photograph and personal sketch of Mr. Smith appeared in THE INDIA RUBBER WORLD May 1, 1918.

BARBECUE TEST ON SOLID TIRES.

The so-called barbecue test was devised to measure the adhesion between the tread rubber, and the hard-rubber layer of a solid truck tire. It formerly was required by the specifications for solid tires to be furnished to the United States Government. The details of the test are given below although recently it has



THE BARBECUE TEST ON A SOLID TIRE.

been discontinued by authority in government inspection. The equipment consists of a strong bench upon which is mounted a heavy vise. At the end of the bench opposite the vise is mounted a 1½-ton triplex chain-block. A 2,500-pound Chatillon dynamometer is used to register the pull. The tire is prepared for test by cutting the rubber back along the top of the tire channel far enough to permit a secure rope tie. The dynamometer is interposed in the line of pull between tire and chain-block, as shown in the illustration, and registers the strain required to separate the soft rubber from the hard.

BRAIDED CABLES FOR THE TROPICS.

British cable manufacturers who make cables with white, red and black braiding state that the first is chiefly for export to the tropics. It seems that for some reason, which has hitherto found no satisfactory explanation, rubber with white, or even black braiding, is less liable to deterioration in tropical climates than with red. Thus in India, practically no red braided cables are used.

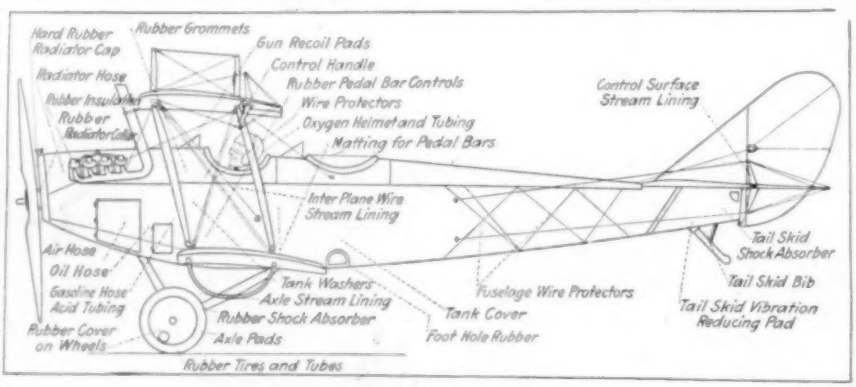
Rubber in Airplane Construction.

By Edgar H. Wilson.

SOME of the most essential accessories for airplanes are made of rubber for the reason that they are affected neither by high altitudes nor by sea-level conditions, and, moreover, if the plane meets with a mishap, rubber parts are the last ruptured. Airplane parts that are now made of certain other materials could just as well be made of something different, but this is not so with parts made of rubber, the importance of which in the field of aerodynamics is being admitted to an increasing extent. The lives of aviators depend on the action of each part; a fact that must be borne in mind in the construction and manufacture of all parts and accessories.

TIRES AND TUBES.

Pneumatic fabric tires were the first rubber equipment to be used on airplanes. The original type has now been superseded by efficient cord casings with thin treads and completely exposed side walls. Weight and cross-section at this point must be cut to the minimum, because it forms parasite head resistance. The inner tubes are of very light, yet strong construction, and are so encased that pinching is reduced to a minimum. The tubes are equipped with special valves which protrude through the rubber covering that surrounds the spokes of the wheel. The openings of these valves will fit both American and French air pumps by merely reversing the cap.



RUBBER AND A MODERN BIPLANE.

GRIP HANDLES AND GROMMETS.

Rubber grip handles used on all light fighting planes, are light and of efficient construction. Heavy day or night bombers use the "Dep" or wheel control, made of vulcanite or hard rubber. Grip handles are made in three types. One is used in connection with Liberty-motor-equipped planes and the other two in connection with the lighter rotary motors, where parts of the switch control are necessary in the end of the stick or "joy" control. Rubber grommets, or escutcheons, are used in many places for protecting wires passing through the cowl and to protect the tachometer and speedmeter shaft. They are provided in various sizes, of round and oblong shape, and designed to hug the hole in which they are placed.

SPECIAL HOSE.

A special line of aircraft hose has also been developed. Air hose is not used to any extent, but hot oil and gasoline hose are utilized in many places in the construction of standard aviation motors. Performance must never fail or serious accidents will occur. The specifications for the hose used by the Government have been drawn up by the Signal Corps after competitive tests with various kinds of hose. Recently a molded and braided type has made its appearance, which has been found more efficient than the other types of hose. There has also been considerable improvement in radiator hose, which must be light and yet resist high temperatures for long periods.

RUBBER PADS, RADIATOR CAPS AND INSULATED WIRES.

Many rubber pads are used throughout an airplane between the axle and its bed, between the tail skid and the adjoining cross member, to reduce motor vibration. These have all proved their ability to assimilate punishment, and to save more important members from excessive wear. Hard-rubber radiator caps are of much the same construction as those used on automobiles; they are used on many types of airplanes. Insulated wires perform the same duty as on an automobile, except that they must be better protected and of greater efficiency.

RUBBER STREAM LININGS.

Rubber is a very efficient stream-lining material. On some types of machines the axles and spreader tubes running parallel to them are completely covered by a rubber tube which expands during the landing of a machine, and contracts as it leaves the ground, so that the head resistance of this member is at a minimum. Possibly the most efficient stream lining is accomplished at the tail skid, where a rubber bib is attached so that the opening in the fusilage is closed to air currents while in flight and stones and foreign matter are kept out while taxing across a field. The inner-plane wires have also been stream-lined, when they are parallel, by a specially constructed rubber tube which encloses them. Wind-tunnel tests show that two wires thus covered offer less resistance to the air than single wire uncovered, which results in largely reducing head resistance, which means a considerable increase in the number of miles per hour, as well as a diminution in gasoline consumption. It also eliminates the harsh vibration peculiar to wires that are not stream-lined. There are also irregular rubber parts which cover control-surface regulators for changing the balance of the plane while flying and disposing of its load of bombs.

FUSELAGE-WIRE PROTECTORS.

Fuselage-wire protectors are an adaptation of the idea of the ball-and-socket fastener applied to a rubber washer. Both "ball" and "socket" have a groove across the flat surface, along which lies the fuselage wire. The little device is put at the exact point where the wires cross and the tension of the wires themselves holds it indefinitely in place, while at the same time it in turn holds the wires together, yet leaves them free to move with itself as the axis. It thus provides a solution for what was a serious problem—how to fasten the fuselage wires together flexibly and prevent them from wearing each other by friction, particularly when the planes struck the ground and the longerons straightened out, thereby changing the angles of the fuselage wires relatively to each other.

SHOCK ABSORBERS.

Many types of shock absorbers have been tried and found wanting, but the rubber cord is in favor at the present time. Originally, when rubber was first adopted, a series of rubber

rings was enclosed in a bridge on either side of the axle, but these were found cumbersome and heavy and presented too much parasite head resistance. Then came one of lighter rubber-cord construction that gives very good results; however, it is evident that the shock absorber is still in its infancy and opportunities for improvement are abundant. The life of the rubber cord, which is composed of many small strands of rubber covered by a braided cotton cover, is governed by the life of the cotton. When the covering breaks, the efficiency of the cord is at an end. The greatest reason why the rubber cord is used is because of the peculiar hysteresis curve that it gives. It has, moreover, great ability for absorbing shock in landing and taxing across a field. The old type of rubber ring has very little hysteresis except when the stock is of such a nature that it cannot come back, and consequently takes permanent set. Obviously, a unit of rubber that elongates when a load is applied, and returns promptly to its original length when the load is released, affords little shock-absorbing ability, because its action is equal in both directions. A new type of shock absorber recently developed is made of rubber with all the advantages of the cord, but with none of its disadvantages. In order to prolong the life of the rubber cord or rubber shock absorber in some of the lighter fighting planes, a protecting collar of rubber has been made to be inserted in such a way that the pinching action of the metal portion of the spool and bed is eliminated, so that the cord is free from punishment and its efficiency is impaired only by its own action.

RUBBER WASHERS, STRIPS AND COLLARS.

Because of the continuous vibration of airplanes, petrol tanks and all delicate parts are guarded to some extent with rubber, either in washer or strip form. Special designs of oil strips have been made for use in the head cowl of the rotary motors. These prevent the oil from spraying the face of the pilot and not only add greatly to his comfort, but to his safety as well. Then, too, there are rubber radiator collars, used when the shaft of the motor with the propeller fastened on the end protrudes through the radiator. This rubber protects the delicate portion of the housing so that it will not be cut through by the harsher member under constant vibration.

TANK COVERS, MATTING AND TUBING.

Interesting tests have also been made on a gasoline tank cover so constructed that the inner stock of the cover kept under pressure, and when penetrated by bullets the holes are immediately closed, thereby retaining the fuel and permitting the aviator to reach his own line with safety. Rubber matting is being used, principally the pyramid type, in place of aluminum. These molded pieces of matting are used on the pedal bar, for foot control in the foot-holes and on the floors of the large bombers.

Tubing as well as hose is essential. Light tubing is used for conveying gasoline and oil under low pressure, and acid tubing is also required. There are also numerous pieces of rubber tubing that are compounded to endure long periods of oxidation. These are placed in the pipe lines at critical points where metal tubing cannot be used to advantage.

OXYGEN HELMET.

The pilots at some of the aviation fields have recently become interested in rubber clothing providing warmth for themselves while in flight. A most important equipment of an army aviator is the oxygen mask for high altitudes. Without this helmet the cruising radius of a pilot would be confined to what his own physique would stand, but with the helmet, the cruising radius is only limited by the capacity of the machine which he flies. The apparatus consists of a helmet, similar to the present gas helmet used by the Army, with the exception that pure oxygen is breathed instead of air passing through purifying substances.

Formerly aircraft engineers were skeptical about the mechanical efficiency of rubber, but during the past year such developments have taken place that they are beginning to recognize the advantages of the use of rubber and are awaiting with interest the introduction of other rubber parts and the refinement of those now in use.

UNITED STATES ARMY SPECIFICATIONS FOR RUBBER BLANKETS.

MATERIALS.

THE body of the blanket to be of gray sheeting, best quality, at least 36 inches wide, weighing not less than three and ninety one-hundredths (3-90/100) ounces to the linear yard, 35 inches wide; counting not fewer than 56 threads and not more than 66 threads to the inch in both warp and filling, and having a tensile strength of not less than 56 pounds to the inch in the width in both warp and filling.

Blankets to be thoroughly and uniformly coated with a high-grade black rubber compound containing not less than 75 per cent (by volume) best grade fine Para or plantation *Hevea* rubber, the sulphur content not to exceed 5 per cent by weight of the total rubber content. The surface rubber to be calendered and not spread upon sheeting. Each blanket to be vulcanized after being manufactured.

SIZE AND DESCRIPTION.

To be 83½ inches long and 71½ inches wide, all four edges to be turned in with a 1¾-inch hem, securely cemented, making the complete blanket 80 inches by 68 inches. Where edges of material are joined to form proper width, the joined edges must be turned under and securely cemented as in the standard, the tensile strength of the joint to be at least 40 pounds per inch of width. Blanket to have one No. 3 brass grommet in each corner, four on each end, and five on each side, one inch from edge of blanket, placed equal distances apart, about 13 inches, as shown in standard sample. Completed blanket to weigh not more than 6 pounds 4 ounces and not less than 5 pounds 12 ounces.

MARKING.

Each blanket to be stamped or stenciled on under surface with the following, fast-color black ink being used: near center: "Med. Dept. U. S. A." (one-inch black letters): in one corner: (name and location of contractor and date of contract).

FOLDING AND PACKING.

Five blankets will be folded to form a bundle about 15 by 36 inches. Seven of these bundles (35 blankets) will be packed in boxes strongly made of ¾-inch (finished) material, strapped for export shipment (specifications for export packing boxes furnished on request). Each box to be marked on its end with the contents, name of contractor and date of the contract.

WORKMANSHIP AND FINISH.

Workmanship and finish of blankets to be first-class in every respect, equal to and like standard sample at Field Medical Supply Depot, United States Army, 21 M street, Northeast, Washington, D. C.

WASTE RECLAMATION COUNCIL MEETING.

A meeting of the Waste Reclamation Council was held Thursday, November 21, at Washington, D. C., when the importance of waste materials during the war and in the after-war program was discussed.

Among the speakers were former President William H. Taft and Hugh Frayne, chairman of the Labor Division of the War Industries Board. Louis Birkenstein, Chief of Salvage of the Department of Reclamation and Conservation of the War Department, who represented the National Association of Waste Material Dealers, pledged the association's cooperation in carrying out the Government's plan for collecting and marketing waste materials.

"Rubber Machinery," by Henry C. Pearson, is filled with valuable information for rubber manufacturers. Price, $6.

U. S. NAVY DEPARTMENT SPECIFICATIONS FOR INSPECTION OF RUBBER MATERIAL.

GENERAL SPECIFICATIONS.

1. "General Specifications for Inspection of Material," issued by the Navy Department, in effect at date of opening of bids, shall form part of these specifications.

TEMPERATURE OF TESTING ROOM.

2. All tests of the rubber parts shall be made in a room, the temperature of which is not below 65 degrees F., nor above 90 degrees F. No tests shall be made until 48 hours after vulcanization.

APPARATUS FOR TESTS.

3. A standard testing table suitable for the purpose shall be used.

TESTS OF ADHESION OF RUBBER PARTS TO COTTON OR FABRIC PARTS.

PREPARATION OF TEST PIECE.

4. In making the test, a section of the article shall be cut as follows:

(a) In testing hose the section shall be cut transversely, unless the diameter of the hose is too small to be practical for this test, in which case it shall be cut longitudinally.

(b) When testing belting, packing, or gasket material, it may be cut in any direction.

(c) When testing rubber-lined cotton hose the test piece shall be prepared by cutting directly through the section, so as to lay out upon the table a piece measuring the full length of the circumference of the hose and 2 inches in width. On this piece two parallel cuts 1½ inches apart shall be made by cutting through the lining only and not injuring the cotton cover. This strip shall be started at one end to the extent of about 1½ inches. The cotton cover only shall be fastened in the clamps.

(d) When testing a fabric-plied hose the section shall be one inch in width. The piece shall be separated until the part next to the rubber cover shall be loosened. The section shall then be placed on a mandrel whose diameter is the same as that of the inside of the hose to be tested.

(e) When testing packing the piece shall be prepared as in the case of rubber-lined cotton hose, unless the thickness of rubber is greater than ⅛ inch, in which case the piece shall be prepared in such a way that the rubber part may be clamped at the top and held immovable while the weight, as described below, is clamped to the fabric.

(f) When testing belting the test strip shall consist of two plies of fabric only, one ply being held in the stationary grip, with weight suspended freely from the other ply.

(g) Square Tuck's packing shall be tested in the same manner as is specified for testing the friction between the plies of a belt.

(h) The friction in round Tuck's packing shall be tested by the same method as is used in fabric-plied hose, the core being drilled out to permit the insertion of a mandrel. Whenever the core is 3/16 inch or less in diameter it shall be tested in its original shape. When it is over 3/16 inch in diameter a piece six inches long shall be separated from the fabric and cut and buffed on four opposite sides to form a square section ⅛ by ⅛ inch in the center of the test piece. The ⅛-inch square shall be at least one inch in length.

(i) In testing the friction of belting the load should be applied at right angles to the plane of separation, or the test strip should consist of only two plies of fabric, one ply being held in the stationary grip with the weight suspended freely from the other ply. By this means the effect of the thickness of the belt may be eliminated.

PERFORMANCE OF TESTS.

5. Having thus fastened the test piece, the clamp ring shall be slipped upon the mandrel, or, in the case of fabric-plied hose, the test piece shall be slipped upon the mandrel. The free-moving clamp shall be tightly fastened to the free end and the weight supported upon a movable table hooked over the hook in the clamp. The weight and the clamp together shall be exactly equal to the weight called for in the specifications.

The weight then supported by the movable table of the testing machine shall be lowered until the clamp and free end of the hose are just taut. An indelible pencil mark shall be placed upon the separating layers of the test piece, and by quickly loosening the thumb screw supporting the table it shall be allowed to fall, leaving the weight freely suspended. In every case this shall be done without a jerk. The time shall be read at the moment of freeing the weight and at the moment of remarking. The weight shall be allowed to act upon the test piece for ten minutes, at the end of which time an indelible pencil mark shall be placed again upon the separating layers of the test piece. The movable table shall then be brought up to hold the weight, the test piece removed and laid upon the table, and the distance between the pencil marks shall be measured by means of a certified rule accurately graduated in decimals of an inch. The distance between the marks shall be recorded as the number of inches of separation in ten minutes, from which shall be computed the rate in inches per minute.

TESTS OF RUBBER PARTS.

PREPARATION OF TEST PIECE.

6. (a) For hose, a section one inch in width shall be cut. For belting, packing, and sheet gaskets a piece one inch in width and six inches in length shall be cut in any direction. The rubber parts shall be carefully separated from the fabric of this piece, using benzine in small amount if necessary. The benzine used in this case shall always be 76 degrees Baumé, free from oil.

(b) In case of articles to be tested, such as washers, ferrules, and molded gaskets, which are of such peculiar shape that the above methods do not apply, small sample pieces shall be sent with each delivery. These sample pieces shall be eight inches in length, 1½ inches in width, and ⅛ inch in thickness, unless otherwise specified. These sample pieces shall be guaranteed by the manufacturer to represent truly the average composition and cure of the article delivered. Test pieces shall be cut from these samples as described below.

(c) From these one-inch sections, or from sample pieces thus prepared, a test piece shall be cut by a die. The dimensions of the test piece shall be indicated in each specification. It is the intention to have the cross-section area at the constricted part approximately 1/32 square inch. The backing or cloth impression shall be removed from the test piece by buffing for determining the cross-section area. The test specimen shall be buffed on a machine such as is made by the Emerson Machine Co., of Boston, or its equivalent.

(d) No test shall be performed until the piece has been allowed to stand for one hour after removal from the article, if it has in any way been in contact with benzine.

TESTING MACHINE.

7. (a) The jaws shall tighten automatically and exert a pressure proportionate to the applied tension. The rate of speed of separation of the jaws shall be uniformly 20 inches per minute. The jaw shall exert a uniform pressure across the width of the test piece, regardless of any variation in the thickness of the rubber.

(b) The test machine shall be suitable to carry out the necessary tests, and shall be standardized in accordance with the latest approved designs so far as practicable.

MAKING THE MEASUREMENTS.

8. (a) TAKING OF TIME.—All measurements of time shall be taken by means of a stop watch. The fundamental methods of testing are so made throughout the entire rubber specifications that the following procedure shall be uniform: After

placing any test piece in the machine ready for stretching, the piece shall be drawn just taut and the stop watch started at the instant of the beginning of the stretch. The piece shall then be held for ten minutes at a specified distance, and the time shall be again noted at the moment the piece is released. This moment is simultaneously the beginning of the period of rest. The measurement is then to be taken at the instant of expiration of the second 10 minutes.

(2) MEASUREMENT OF ELONGATION.—Marks two inches apart shall be placed on the test piece by means of a marker. These marks shall be at right angles to the direction of pull of the piece in the machine. Great care shall be taken: (1) That the marks are not too wide, and (2) that at the time of marking, the piece shall have been lying for a sufficiently long time to be completely at rest on a wooden table which has been at the temperature of the room mentioned in paragraph 2 herein. The marks shall be placed on the smooth side; that is, in no case on the side which is corrugated, due to its impression taken from the fabric.

After clamping the test piece in the jaws of the machine the movable jaw shall be so adjusted with the pointer reading zero on the scale that the test piece is just taut, but not under tension. The operator shall throw on the power to start the screw and, when ready, throw in the engaging lever to start the jaws. He shall keep the elongation scale pointers opposite the outside edges of the marks on the piece. To stop the motion at the desired elongation or upon the break of the piece, the jaws shall be disengaged from the screw.

The accuracy with which the elongation measurements are made will depend upon the accuracy with which the operator keeps the two pointers opposite the outside edge of the marks on the test piece.

The elongation shall be reported in inches, including the original two inches; that is, if the rupture occurs at eleven inches, or twelve inches, or thirteen inches, it will indicate that the stretch has been two to eleven, two to twelve, or two to thirteen. The piece shall be removed from the machine, but not snapped back; in no case shall the time consumed in removal from the machine exceed two seconds.

(c) MEASUREMENT OF PERMANENT SET.—After the piece has been removed from the machine the permanent elongation or recovery shall be measured by laying it upon a wooden table which is of the temperature of the room, and allowing it to rest for ten minutes. Immediately upon the expiration of the ten minutes a rule graduated to 1/32 inch shall be laid upon the piece and the elongation read in 1/32 of an inch, measuring the outside of the marks.

The per cent of elongation of the test piece above the original two inches shall represent its permanent elongation.

Tests for the determination of permanent set will be made upon a machine similar in principle to the one illustrated on the last page of these specifications.

TENSILE STRENGTH.

9. (a) The tensile strength shall be determined by stretching a test piece not previously tested in the tensile machine until it breaks. If the test piece breaks outside the marks, or in the wider portions of the piece, and the tensile strength is much below that called for in the specifications, it is probable that this piece is faulty and that another would meet the requirements. If the piece breaks outside the marks and yet shows a tensile strength above that called for in the specifications, it is probable that the piece is faulty and that its true tensile strength is higher than indicated. Since its recorded tensile strength exceeds that called for in the specifications, however, it shall not be necessary to retest.

Before any tests are made, the width of the test piece shall be determined at three points equidistant between the marks. The backing or irregularities of fabric impression shall be stripped or buffed off and the thickness measured with the backing removed. It shall be determined at three points equidistant between the marks on the test piece, by means of a standard spring-gage micrometer (exerting a pressure of eight to twelve ounces), the disks of which are ½ inch in diameter. The measurements used in the computation of tensile strength shall be those read nearest the point of break. The disk of the micrometer shall be ¼ inch in diameter when measuring thickness of the tube of all hose which has an inside diameter of one inch or under.

(b) INITIAL STRESS.—During the elongation and recovery test the initial stress shall be taken by connecting a spring balance with the piece under test. The number of pounds read on the balance at the maximum stretch shall then be computed in pounds per square inch and expressed as "initial stress."

PRESSURE TESTS.

10. (a) The hose shall be stretched out for inspection, connected to the pump, and filled with water, leaving the air cock open to allow the air to escape. The air cock shall then be closed and a pressure of ten pounds per square inch applied. The test shall then begin by taking original measurements without releasing the pressure.

(b) All pressure tests shall be made by using a hand or power water pump, and a standardized gage. The increase in pressure shall be made at the rate of 300 pounds per minute, and the hose under test shall be held for measurement not more than two minutes, unless otherwise called for in the specifications.

COMPOSITION.

11. (a) FRICTION.—Wherever, in the detail specifications, friction is mentioned it shall be made from a compound which will neither yield to acetone, any organic constituent foreign to *Hevea* rubbers, nor contain more sulphur than is necessary for vulcanizing, so that the pecentage of sulphur in the rubber layers shall not be raised beyond the permissible amount.

(b) MATERIAL.—The (*article*) shall be properly vulcanized and shall be made from and shall have all the characteristics of a compound containing not less than .... per cent of washed and dried fine Para rubber, not more than .... per cent of sulphur, with the remainder suitable dry inorganic mineral fillers. The mineral fillers may contain barytes, but shall be practically free from sulphur in other forms and from any substance likely to have a deleterious effect on the rubber compound. The sulphur in barytes will not be included in the allowable sulphur content.

(c) SAMPLE FOR CHEMICAL ANALYSIS.—A sample taken for chemical analysis shall be sent intact to the laboratory for tests.

AVERAGE READING.

12. Since the physical properties of rubber vary noticeably in any given product, it may occasionally happen that tests are made upon a sample which will be of poor quality. The hose, belting, or packing will, as a whole, meet the requirements of the standard, but the particular piece taken may fall somewhat below it. To reject or accept a lot of hose because of its failure to meet one test under specifications would therefore be unfair. For this reason acceptance or rejection of an item offered for delivery shall be based on the average of at least four determinations for each quantity. In arriving at these averages no weight shall be given to tests which are obviously in error and do not represent true average conditions, e. g., cases in which the tensile strength is low on account of a small flaw in the article or the friction is low on account of a small flaw in the friction part. In other words, the intent of the specifications is to insure a high-grade article in every particular, and the intent of the methods of testing is to determine whether the article as a whole is of this high standard.

Deliveries of hose, packing, etc., which regularly meet certain provisions of the specifications, but quite as regularly fail to

meet others, are obviously improperly made and should be rejected.

REJECTIONS AND REPLACEMENTS.

13. All rubber materials shall be inspected and tested, so far as practicable, at the point of manufacture.

REPUBLIC RUBBER CORP. INCREASES CAPITAL.

The certificate of incorporation of The Republic Rubber Corp. has been amended to provide for—first, a preferred seven per cent cumulative stock consisting of 100,000 shares, par value $10,000,000; second, 25,000 shares of second preferred eight per cent cumulative convertible stock, par value $2,500,000; third, 650,000 shares of common stock without nominal or par value, being an increase of 400,000 shares over the present authorized common stock. The directors of the company have decided to offer 20,000 shares of the second preferred stock, par value $2,000,000, and 100,000 shares of common stock without nominal or par value, to the common stockholders of the company for subscription pro rata to their present holdings. In other words, each common stockholder will be entitled to subscribe to as many shares of second preferred stock as will equal 10 per cent of his present holdings in common stock, and to five shares of common stock for each single share of second preferred stock to which he is entitled to subscribe. As stated elsewhere in this issue, the Republic Rubber Corp. has recently acquired the assets and factory of the Knight Tire & Rubber Co., at Canton, Ohio. The gross sales of The Republic Rubber Corp. are now running at the rate of approximately $18,000,000 per annum, more than three times the average annual volume of business done by the Republic and Knight companies for the three years previous to 1917, and more than double the volume of business done by those companies in any one of these years. During the six months' period ending August 31, 1918, the net profits of the Republic company were in excess of $900,000.

CARLISLE IN NEW YORK.

The Carlisle Sales Co., Inc., has recently been incorporated in New York State, as noted in our issue of November 1, 1918, for the purpose of taking over the business of the Carlisle Cord Tire Sales Co. and the distribution of the products of the Carlisle Cord Tire Co., Inc., of Andover, Massachusetts. J. E. Demar is president of the corporation and L. Treboul, secretary. The concern has opened offices and stock rooms at 237 West 58th street, New York City.

KEYSTONE ELECTS DIRECTORS.

The Keystone Tire & Rubber Co., 1877 Broadway, New York City, has elected the following directors: Joel Jacobs (treasurer); L. Walter Lissberger, 1877 Broadway; Nathan J. Miller, Miller & Co., 120 Broadway; Julius Lichtenstein, American Sumatra Tobacco Co., 142 Water street, and Sydney Bernheim, Bernheim & Loewenthal, 35 Nassau street, all of New York City.

ORGANIZATION AND FUNCTIONS OF THE HOOD RUBBER CO.'S SERVICE DEPARTMENT.

FUNCTION OF SERVICE DEPARTMENT UNDER SERVICE MANAGER TO CREATE AN EFFICIENT, HEALTHY, STABLE BODY OF WORKMEN.

Employment.	Health.	Safety and Sanitation.	Education.	General Service.
Functions.	Functions.	Functions.	Functions.	Functions.
1. Knowledge of sources of supply.	1. Physical examination of applicants.	1. Reduction of accidents by— (a) Education. (b) Safeguarding hazards. (c) Following up of accidents and near accidents.	1. Bulletin board information.	1. Supply store for employes. (Groceries sold at cost.)
2. Knowledge of factory requirements.	2. Physical examination of present employes.	2. Frequent factory inspection, by— (a) Safety engineer. (b) Members safety committee.	2. General instructions to employes.	2. Farm. (Vegetables raised and sold at cost.)
3. Knowledge of hours of work.	3. Periodic reexamination of defectives.	3. Reports all accidents to proper authorities.	3. Circulation of current magazines.	3. +Restaurant service.
4. Knowledge of wages.	4. Periodic reexamination of employes exposed to industrial hazards.	4. Cooperate with employment and health department in shortening periods of disability.	4. Circulation of library books.	4. Supervision of housing.
5. Knowledge of work environment.	5. Advise employment dept. on placement of defectives.	5. Facilitate compensation payments.	5. Instructions in— (a) Health. (b) Hygiene. (c) Care of teeth. (d) Care of eyes.	5. Supervision of recreational activities.
6. Proper selection of applicants by— (a) Careful interview. (b) Knowledge of past record. (c) Knowledge of physical condition. (d) Knowledge of job requirements.	6. Treatment of medical cases.	6. Keep adequate records and statistics.	6. Factory publication.	6. Supervision of superannuated employes.
7. General instructions to new employes.	7. Treatment of surgical and accident cases.	7. Supervision of— (a) Drinking water supply. (b) Ventilation. (c) Lighting. (d) Heating. (e) Toilets and locker rooms. (f) Janitor and matron service. (g) General sanitary condition.	7. Organization clubs.	7. Supervision of Mutual Benefit Association.
8. Follow up of service record.	8. Treatment of dental cases.	8. Elimination of industrial disease hazards.	8. Americanization work.	8. Supervision of thrift activities.
9. Investigation of absences.	9. Treatment of ocular cases.	9. General supervision of working conditions.		
10. Transfers and promotions.	10. Prevention of a communicable disease and epidemics.			
11. Investigation of grievances.	11. Cooperation with employment department and safety department in investigating absences.			
12. Interview all leaving employes. (a) To approve discharge. (b) To check up foreman's reason for leaving. (c) To insure an impartial hearing.	12. Furnishing employment department with data concerning employes who are leaving on account of ill health.			
13. Keep adequate individual records.	13. Keep adequate examination and treatment records.			
14. Keep detailed turnover records.	14. Furnish statistics pertaining to health.			
15. Furnished State and Federal records.				
16. To act as clearing house for general employment work.				

+Not under service organization.

Prepared by Robert S. Quinby, M. D., Service Manager, Hood Rubber Co.

The outline above shows clearly the comprehensive and highly commendable plan adopted by the Hood Rubber Co., Watertown, Massachusetts, to maintain a stable body of efficient employes. Labor is becoming such a grave problem that all methods tending to build up an able and contented working force and to reduce the labor turnover to the minimum are money-savers of more than normal interest.

Trade Acceptances for the Rubber Goods Manufacturer.

By Russell Raymond Voorhees.

IN our discussion of trade acceptances in the May, 1917, issue, we took up the advantages that this financial paper offers to the buyer of rubber goods. We found just what the benefits are to the rubber goods dealer and that they are certainly vital enough to warrant every dealer using them when he makes time purchases. But in addition to the advantages that trade acceptances offer to the dealer they also possess equal advantages for the jobber and manufacturer. Every jobber or manufacturer of rubber goods should ask for trade acceptances when he sells goods on credit. They are just as valuable to him in his way as they are to the dealer when he makes a purchase.

In the first place, the use of trade acceptances will fix the exact amount of the bill at once. It is too often the case in business that when the time for payment comes the buyer may advance a derogatory claim with reference to the goods in order to defer the date of settlement. Of course, in many cases the claim is just, but at least it should have been taken up before the last minute. Mistakes are bound to happen in any business, yet it would seem that the bulk of such mistakes could at least be rectified at once without waiting until the date of payment arrives. If a trade acceptance is asked for when a jobber or manufacturer sells the bill of goods there will be no come-back later as to the amount owing. Since the exact amount of the obligation is written across the face of the instrument and by endorsing it the buyer accepts the amount as correct, it can be seen that trade acceptances are a means of practically closing a transaction at the time of purchase.

One of the common abuses of business is the unearned discount. Time buyers all too often take off the regular cash discount when they come to pay their bills, and jobbers and manufacturers in many cases are helpless to remedy this evil. They fear that if they try to put a stop to this practice the buyer will take his trade elsewhere regardless of who is in the right. For this reason it is often allowed to run on, with the result that time buyers buy on the same terms as the cash customer, which is most unfair to the buyer and to the seller. Trade acceptances are not subject to discount at the time of payment, and as they have the exact amount written on the face there can be no opportunity offered for taking an unearned discount at the time of settlement. The general use of trade acceptances will without doubt remove from business this more unhealthy practice and give to every jobber and manufacturer all that is due them.

In addition to the saving of unearned discounts, trade acceptances will give the seller of rubber goods a cheaper method of collecting his accounts. When the buyer of the goods gives the acceptance, he writes across the face of it the bank at which it is to be paid and when it falls due, and that bank attends to the collecting, thus removing a bother and an expense from the hands of the jobber or manufacturer. This certainly is an economic method.

Overbuying is without doubt one of the big causes of failure in this country. There is far too much speculation in the average business and sooner or later some companies fall by the wayside with large stocks on hand. And just as surely as overbuying is one of the chief causes of failure, so is overcredit one of the chief causes for overbuying. Too many dealers who buy on time take no thought of meeting their obligations, but plunge ahead until the day of reckoning. When trade acceptances are substituted for the open account it is only a short time before the poor risk is brought face to face with obligations that are due and many failures to meet them will prove his undoing. A buyer who gives an acceptance at the time of purchase will realize that he is making an obligation that he must meet, and it will generally be found that he will try harder to meet it than if it were simply an open account where promises can take the place of cash.

And right along this line there is a point that is worth mentioning. The loss that jobbers and manufacturers incur by means of bad accounts will be materially lowered. It will be but a short time, a few months, when the bad risk will be eliminated and when that is done it will be found that profits will be materially higher than at present. More accounts will be paid when due and less will be lost through failures.

Date.	Bankers' acceptances.						Trade acceptances bought in open market.	Total acceptances.
1915.	Member banks.	Nonmember trust companies.	Nonmember State banks.	Private banks.	Foreign bank branches and agencies.	Total.		
Feb. 22....	$93,000	.....	.....	.....	.....	$93,000	.....	$93,000
Apr. 5.....	3,653,000	$7,820,000	$10,000	$110,000	.....	11,593,000	.....	11,593,000
July 3.....	4,342,000	5,267,000	.....	161,000	.....	9,770,000	.....	9,770,000
Oct. 4.....	9,000,000	4,898,000	132,000	343,000	.....	14,373,000	.....	14,373,000
Dec. 6.....	12,311,000	5,172,000	275,000	396,000	.....	18,154,000	.....	18,154,000
1916.								
Jan. 3.....	15,494,000	7,160,000	362,000	822,000	.....	23,838,000	.....	23,838,000
Mar. 6.....	17,182,000	8,670,000	408,000	1,781,000	.....	28,041,000	462,000	28,503,000
Apr. 3.....	21,000,000	13,573,000	473,000	3,262,000	.....	38,308,000	722,000	39,030,000
May 1.....	24,875,000	15,400,000	585,000	3,430,000	.....	44,290,000	1,477,000	45,767,000
July 3.....	32,989,000	18,921,000	471,000	11,830,000	.....	64,211,000	3,422,000	67,633,000
Aug. 7.....	39,695,000	19,060,000	738,000	13,940,000	.....	73,433,000	4,225,000	77,658,000
Sept. 4.....	41,413,000	20,356,000	726,000	12,491,000	.....	74,986,000	3,673,000	78,659,000
Oct. 2.....	37,798,000	21,782,000	712,000	9,944,000	.....	70,236,000	2,306,000	72,542,000
Dec. 4.....	47,748,000	33,232,000	1,630,000	16,069,000	.....	98,679,000	4,487,000	103,166,000
1917.								
Jan. 1.....	66,803,000	34,625,000	1,502,000	18,224,000	.....	121,154,000	4,585,000	125,739,000
Feb. 5.....	50,361,000	23,511,000	972,000	13,775,000	$140,000	88,759,000	4,041,000	92,800,000
Mar. 5.....	53,288,000	32,518,000	1,090,000	20,581,000	354,000	107,837,000	2,535,000	110,366,000
Apr. 2.....	43,979,000	20,328,000	689,000	16,830,000	200,000	82,026,000	1,144,000	83,170,000
May 7.....	49,192,000	19,650,000	236,000	19,177,000	94,000	88,349,000	1,679,000	90,028,000
June 4.....	69,262,000	27,611,000	584,000	21,077,000	239,000	118,773,000	3,022,000	121,795,000
July 14-16..108,597,000		30,390,000	3,333,000	38,082,000	3,805,000	184,785,000	4,660,000	189,445,000
July 31....112,433,000		43,107,000	2,564,000	20,782,000	1,087,000	179,973,000	4,242,000	184,215,000
Aug. 31.... 94,597,000		33,273,000	2,312,000	18,086,000	1,369,000	149,637,000	4,952,000	154,589,000
Sept. 29....131,997,000		14,987,000	2,193,000	21,708,000	2,286,000	173,171,000	6,942,000	180,113,000
Oct. 31....150,301,000		3,147,000	1,307,000	21,083,000	2,153,000	177,991,000	6,224,000	184,216,000
Nov. 30....171,723,000		5,338,000	753,000	18,201,000	3,163,000	199,178,000	6,275,000	205,453,000
Dec. 31....227,717,000		8,163,000	3,179,000	20,137,000	7,657,000	266,853,000	6,383,000	273,236,000
1918.								
Jan. 31....240,259,000		5,547,000	3,522,000	22,099,000	6,947,000	278,374,000	6,363,000	284,737,000
Feb. 28....252,747,000		1,648,000	3,856,000	28,419,000	7,097,000	293,767,000	4,456,000	299,223,000
Mar. 31....275,144,000		1,360,000	1,884,000	31,779,000	8,562,000	318,729,000	8,015,000	326,744,000
Apr. 30....248,390,000		654,000	2,907,000	25,921,000	10,304,000	288,176,000	9,279,000	297,455,000
May 31....207,917,000		1,330,000	5,168,000	26,217,000	8,398,000	249,030,000	8,276,000	257,306,000
June 29....173,698,000		1,992,000	459,000	21,478,000	12,315,000	209,942,000	7,418,000	217,360,000
July 31....154,614,000		1,129,000	7,302,000	18,082,000	8,975,000	190,102,000	7,781,000	197,883,000
Aug. 31....188,366,000		1,717,000	8,264,000	19,167,000	8,450,000	225,964,000	8,806,000	234,770,000

Table showing the value of Trade Acceptances bought in the open market since the law went into effect and held by Federal Reserve Banks as per schedules on file with the Federal Reserve Board on dates specified, distributed by classes of accepting institutions.

Turnover is without doubt the secret of success in the game of merchandising, no matter whether one be a buyer or seller of goods. The ability to turn over capital often will mean that profits will be large, regardless of whether one is a retailer, jobber or manufacturer. And trade acceptances offer the means of turning money over often. When they are used a jobber or manufacturer will be able to realize cash on each and every transaction, and by so doing will be able to discount bills at once and use the money, instead of having it tied up in the business of others. Trade acceptances put the entire business on a cash basis and this is the cream of business.

Since this would be the case the need for large amounts of working capital will not be in evidence. A cash business does not require the working capital that a credit business does and in addition the net earnings, in proportion to capital invested, will be materially larger if trade acceptances are substituted for the present system of open accounts.

The jobber and manufacturer finds that trade acceptances offer him an ideal method of raising cash for use in his business. At present he can get it on his own note or by pledging his accounts receivable, but neither method is any too satisfactory and both are more expensive than discounting acceptances which furnish the required capital as quickly and cheaply as it is possible to do it. The use of acceptances tends to give the jobber or manufacturer a better standing at his bank. If they are substituted for the open account his bank will see who his customers are, and there is no better way to obtain influence at your bank than to let them know who your customers are.

Trade acceptances enlarge your borrowing facilities. At present the amount that can be loaned on your own one-name paper may, perhaps, be limited, but with trade acceptances it is different. A bank is limited in the amount it can loan on the paper of any one acceptor, but since a jobber or manufacturer has many customers the banks can loan up to the limit on the paper accepted by each customer, and in that way the jobber or manufacturer will be able to get many times the amount of money that he would have been able to get under the present method of one-name paper. It can be truthfully said that trade acceptances offer unlimited borrowing facilities.

Trade acceptances give the seller of goods a chance to plan his business with some degree of assurance that his plans will be carried out. He is assured that every month he will have a more or less fixed income, a cash income, and this means that he can build up his business without the worry of collecting the money that is owing him.

For the jobber or manufacturer who does not need the money at once, trade acceptances are also of vital service. Their use will remove from business many of the abuses that have been discussed here and in addition can be used as a reserve to be discounted in case of great financial stress or whenever the occasion calls for more capital than the house has at that time. There are several of the larger houses which ask for trade acceptances but do not discount them. They employ them because they eliminate from business the abuse of the unearned cash discount, the protested account and other petty grievances, and in addition give them a quick method of raising additional capital should the occasion arise.

Taken all in all, trade acceptances are of vital use for the jobber or manufacturer of rubber goods. We have seen how they would benefit the retailer, also how they will benefit the jobber and manufacturer. To be sure, they are still new and many large houses are not fully aware of their value. But under conditions such as we have at present, when every turn of capital means something, it would be well for the trade as a whole to study and make use of them as valuable aids to modern business progress.

The practice of individual thrift is a patriotic duty and a necessity.

NEW INCORPORATIONS.

Amazon Tire Co,, Inc., The, October 23 (New York), $10,000. F. H. Findley, 246 East 207th street, New York City; O. Moynihan, 360 West Market street, L. J. Schott, 249 South Arlington street—both of Akron, Ohio. To manufacture auto tires and rubber goods.

American Webbing Manufacturers Export Corp., November 23 (New York), $100,000. M. Griffin, 812 Suburban Place, Bronx; E. K. Cunningham, 485 Central Park West, both of New York City; C. H. McLean, Passaic, New Jersey. To export webbing and webbing products.

Chicago Scrap Rubber Base Co., November 7 (Illinois), $5,000. W. A. Roonet, L. Gaizat, E. J. Hess. Principal office 2204 South Throop street, Chicago, Illinois. To manufacture. buy, sell, repair and deal in vehicle parts of all descriptions, accessories, scrap rubber, etc.

Davenport Tire & Rubber Co., Inc., November 14 (New York), $1,000. Sydney Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 7th street, M. Kittay, 823 Monroe street—both of Brooklyn, N. Y. To conduct tire manufacturing business.

Getchell Co., Noble H., November 14 (Delaware), $40,000 preferred stock, 550 shares common stock without nominal or par value. C. L. Rimlinger, M. M. Clancy, P. B. Drew—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America. Du Pont Building, Wilmington, Delaware. To manufacture and deal in tires and inner tubes for automobiles.

Glamorgan Tire & Rubber Corp., October 21 (Delaware), $250,000. M. Howells, Orrville P. Jones, Warren—both of Ohio; J. T. Thomas, Woodlawn, Pennsylvania. To manufacture and deal in automobile and bicycle tires, inner tubes and rubber accessories.

Industrial Supervision Co., Inc., November 8 (New York), $4,000. S. Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 7th street, M. Kittay, 723 Monroe street—both of Brooklyn—all of New York. To supervise the manufacture of tires, etc.

Miller Rubber Co., W. T., September 17 (Indiana), $10,000. W. T. and D. Miller, W. W. Shelley—all of Elkhart County, Indiana. Principal office, Elkhart, Indiana. To manufacture, purchase and sell motor tires, accessories and supplies and all kinds of vulcanizers and all such machinery used in the process of making and repairing motor tires, accessories and supplies.

National Wool Stock Co., October 2 (Delaware), $300,000. C. L. Rimlinger, M. M. Clancy, F. A. Armstrong, all of Wilmington, Delaware. Principal office within the State, with the Corporation Trust Co. of America, Du Pont building, Wilmington, Delaware. To deal in rubber and scrap materials, etc.

Preston Tire Co., of Houston, Texas, September 26 (Texas), $15,000. C. and N. J. Kavanaugh, C. R. Bender—all of Houston, Texas. To purchase and sell wares and merchandise and agricultural and farm products.

Record Tire & Mfg. Co., Inc., November 21 (New York), $50,000. J. A. Roberts, 256 Broadway, J. H. Devereux, 233 Broadway, G. N. Shafer, 324 West 103rd street—all of New York City. To manufacture tires, tubes, etc.

Truck Tire Sales & Service Co., October 25 (New Jersey), $50,000. J. M. and E. Goodridge, T. N. Balderston—all of 42 Barnes street, Trenton, New Jersey. Principal office, 42 Barnes street, Trenton, New Jersey. Agent in charge, T. N. Balderston. To deal in truck tires.

Yarnall-Waring Co., February 11 (Delaware), $2,000. C. L. Rimlinger, M. M. Clancy, F. A. Armstrong—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, Du Pont Building, Wilmington, Delaware. To manufacture and deal in valves, clamps, gages and similar appliances for boilers, motors and other machinery.

Jar-Ring Tests.[1]

By Charles P. Fox.

Ring out the old,
Ring in the new,
Ring out the false,
Ring in the true.
—*Tennyson.*

FOLLOWING up a complaint made by Mrs. A. H. Throckmorton, 2600 Wellington road, Cleveland, Ohio, in October, 1917, concerning the loss of canned fruit by spoilage, due to faulty jar rings, led to a preliminary investigation of the quality of jar-rings sold in Cleveland. The results of this examination showed the need of a thorough control of the jar-ring trade.

In the latter part of 1917 and the early part of 1918, 388 samples, representing about 60 brands of jar-rings, were examined. On the basis of brands examined, approximately 70 per cent were safe, 20 per cent doubtful, and 10 per cent worthless.

By "safe" we mean that the ring is suitable for use upon the old style Mason screw-top jar, and using the "cold pack" system of canning.

A "doubtful" ring is one which is good while fresh but which rapidly perishes when exposed to air and sunlight, or has been kept for a long time in stock.

A "worthless" ring is wholly unfit for use. It may be too thin, "perished," "weak," or dirty (covered with soapstone or sulphur), or have an objectionable odor.

These tests will determine the quality of a ring:

PINCHING TEST.—Double the ring upon itself and pinch firmly; ring must not crack.

TWISTING TEST.—Twist ring quickly two or three turns, holding ring under a slight tension; ring must not break or tear.

PULLING TEST.—Stretch ring by pulling and note strength and elasticity. A good ring should require at least a 15-pound pull before breaking. We have tested rings that required more than a 25-pound pull to break them.

A general or "once over" test will often show the presence of much soapstone in the carton. While soapstone may be harmless, it is unnecessary. Good rings do not require it. Its presence indicates either poor material or careless factory methods, and it makes extra work for the busy housewife.

Another thing to be looked after is size. A standard ring—one that will give best results under all conditions—should be 1/12-inch thick and 10/32-inch wide.

These tests should be made at the counter at time of purchase. If convenient, or in doubt, test out the ring by adjusting to a jar submerged in boiling water, following closely the conditions required in the cold pack system. Many rings, apparently safe by other tests, when tested in this way show unfitness by becoming soft, are cut through by the lid, or lose their shape so that they are easily misplaced and the seal broken.

Jar-rings are sold in bulk or cartons. Cartons contain one dozen rings. Cartons with short count and with broken rings have been found in several cases. The popular price is 10 cents per dozen; however, price is no guide to quality. Good-quality rings often sell for less money than an inferior grade.

Good rings can be bought; use them. Housewives should remember that jar rings, like wedding rings, must be made of good material. The chemist applies the "acid test" to the wedding ring. The highest grade of jar rings will stand the "alkali test." Poor rings will not. Low-grade rings—those made up largely of mineral matter and oil substitutes, the kind that do not age well—"go to pieces" when treated with boiling alcoholic soda.

This test, while reliable, is rather severe, is inconvenient to apply, and can only be used successfully by a chemist. A preaging test carried out by heating the rings in a water oven for 10 hours often indicates what results may be expected of a ring when kept in stock for a long time.

A mid-summer examination of the jar-ring trade in Dayton, Ohio, shows a slightly better condition that expected. Dayton is a smaller city than Cleveland, and, perhaps, its housewives are more careful buyers. They take nothing for granted and usually make their purchases in person and with great care. They demand good quality.

A smaller number of brands of jar-rings are offered for sale and they are of a better grade. Several of the standard brands are represented and there is a great demand for a certain well-known make, a fact which again proves the truth of the slogan, "It pays to advertise."

PULLING TEST. PINCHING TEST. TWISTING TEST.

[1]Read at the annual meeting of the rubber section of the American Chemical Society, held at Cleveland, Ohio, September 11-12, 1918.

AUTHOR'S NOTE.—The material in this paper was gathered in work along "food conservation" lines.

These tests are the results of adoption and application of information obtained from many sources. While they answer the purpose intended, they are not perfect, and are open to criticism from the standpoint of ultra-technical investigators. The object in presenting the subject was twofold: (1) to bring before the public the condition of the jar-ring situation and the need of jar-ring inspection, and (2) to get manufacturers, through their technical departments, interested in developing specifications and tests for this article.

The interest shown by the rubber section of the American Chemical Society at the Cleveland meeting approves its presentation.

What the Rubber Chemists Are Doing.

THEORY OF LATEX COAGULATION.

IN a paper on the theory of latex coagulation, by G. Stafford Whitby, published in the "Agricultural Bulletin of the Federal Malay States," June, 1918, the author states that he has confirmed the views of Barrowcliff expressed in a recent article (THE INDIA RUBBER WORLD, October 1, 1918), namely, that the agency responsible for the natural coagulation of *Hevea* latex is enzymic; not only natural coagulation, but coagulation resulting from the addition of acetic acid appears to be due to enzymic activity. The function of the acid in acetic acid coagulation appears to be the activation of a coagulating enzyme. Barrowcliff found that the latex which had been sterilized by running it into an equal volume of boiling water was no longer coagulated by acetic acid, but became so if treated with a few drops of fresh latex. The author remarks that the conclusion to which this observation points—that the function of acetic acid in the ordinary process of latex coagulation is to activate an enzyme—resolves certain anomalies involved in the view that the separation of rubber from its colloidal emulsion by acid is a physico-chemical phenomenon in the ordinary sense.

The author states that the object of his paper is primarily to compare, in certain aspects, the coagulation of latex with the coagulation of cow's milk and to record a number of experimental results. Whitby makes closer examination of certain aspects of the analogy indicated by Barrowcliff between latex coagulation and the coagulation of milk by rennin. Somewhat condensed, the author's studies are given as follows:

1. COAGULATION OF STERILIZED MILK. Boiled milk can be coagulated by added acid in the same way as unboiled milk. Sterilized cow's milk in contradistinction to latex sterilized by Barrowcliff's procedure, was coagulable with acetic acid.

2. CRITICAL CONCENTRATION OF ACID FOR MILK COAGULATION. In the coagulation of milk by added acetic acid or added lactic acid there is what may be called a critical concentration of acid. Below this concentration no coagulation occurs. Even when the acid added is only ten per cent less than this quantity no coagulation occurs, but when the critical amount or more is added *immediate* clotting takes place.

This behavior of milk stands in very marked contrast with the behavior of *Herea* latex towards increasing amounts of added acid. In the case of latex there is no critical concentration at which immediate clotting occurs and below which no clotting is obtained. There is a wide range over which acid concentration can be varied and great differences in the rapidity with which coagulation can be brought about.

3. ANTI-COAGULATING EFFECT OF A DEFICIT OF ACETIC ACID IN MILK. A more striking contrast with the effect of added acetic acid on *Hever* latex is that an amount of acetic acid below the critical amount not only fails to produce coagulation in milk, but has a pronounced anti-coagulating effect due presumably to an unfavorable effect on the growth of the lactic acid bacterium. In the case of *Hevea* latex, acetic acid in amounts less than that necessary for rapid coagulation has no anti-coagulating effect. Diminishing the amount of acid added simply renders the coagulation slower. The fact that acetic acid has no anti-coagulating effect on *Hevea* latex tells against the bacterial hypothesis of latex coagulation.

4. TIME FACTOR IN THE FORMATION OF A CLOT. The clotting of milk by added acid is a practically instantaneous process, whereas the time occupied by the formation of a clot in latex may, by adjustment of the amount of acid added, be varied over a period of from three minutes to eight hours. There is thus, negatively, a failure of analogy between latex coagulation and the acid coagulation of milk in regard to the time factor, but there is, positively, a close analogy between the effect of acids on latex coagulation and their effect on the coagulation of milk by rennin, as shown by the results of Gerber.

In the absence of all other considerations, the slowness with which coagulation takes place in ordinary plantation practice would seem to afford a strong presumption that the coagulation of latex under the influence of added acid is not a direct physical phenomenon but involves the activity of an enzyme.

5. ACID CONCENTRATION FOR NATURAL COAGULATION. In the case of the coagulation of milk by the addition of acid or by natural souring, the occurrence of coagulation appears to depend substantially upon the presence of a certain concentration of acid. When, as a result of natural souring, the acidity has reached a certain point, clotting occurs. Under ordinary conditions of souring at 20 degrees C. milk will coagulate when the lactic acid reaches 0.6 to 0.7 per cent.

In the case of latex the development of acidity has not been studied as closely as in the case of milk, but it seems clear that the natural coagulation of latex is not a simple function of its acidity. It has been demonstrated experimentally by the author that the amount of acidity engendered naturally in latex may be very greatly in excess of that which it would be necessary to add to fresh latex in order to produce coagulation which reveals a further failure of analogy between latex coagulation and that of milk.

6. NATURE OF THE CLOT. In outward character, particularly as regards coherency, the clot produced in milk by enzymic action is more analogous to the ordinary rubber coagulum than is the clot produced in milk by natural or added acid. The ordinary rubber coagulum resembles the coherent clot produced by rennin rather than the floccular clot which is first produced in milk by souring or by the addition of acids.

7. INFLUENCE OF CALCIUM SALTS. That calcium chloride is capable of leading to the coagulation of latex was recorded some years ago. It has been suggested by Eaton that the influence of soluble calcium salts in promoting natural coagulation is due to the presence of calcium being favorable to certain anaerobic organisms. There does not, however, seem to be any analogy for this suggestion, either in the coagulation of blood or in the acid or enzymic coagulation of milk. An analogy between the action of calcium chloride on latex and its action on the enzymic coagulation of milk is indicated in its activation of rennin.

8. BACTERICIDES AND ENZYME PARALYZERS. Natural coagulation is not prevented or retarded by toluol, thymol or chloroform water but is prevented by such an agent as hydrocyanic acid. Hydrogen sulphide, although acidic, retards or prevents coagulation.

9. INFLUENCE OF OXYGEN. In apparent contrast to the case of milk the natural coagulation of *Hevea* latex is not dependent upon the surface exposed.

10. POSSIBLE SIGNIFICANCE OF THE "GAP." Barrowcliff points out that, on the view that an enzyme is concerned in latex coagulation, the fact that hydrochloric acid in certain comparatively high concentrations fails to coagulate latex may be due to the destruction or paralysis of the enzyme by this concentration of acid. In such case, at still higher concentrations, the acid would appear to have a direct clotting effect. It has been shown that on adding increasing quantities of hydrochloric acid to samples of latex a point is reached comparatively soon at which no coagulation occurs, but that on continuing to increase the amount of acid added, a point is reached at which coagulation again begins to take place. There is a gap over which no coagulation occurs. The position of this gap was found to be approximately from a concentration of hydrochloric acid corresponding to three

cc. one in ten hydrochloric per 100 cc. of ten per cent latex to ten cc., one in ten hydrochloric per 100 cc. ten per cent latex.

A similarly located gap over which no coagulation, or only very incomplete coagulation occurs, is noticed in the case of nitric acid.

CONCLUSION.

The coagulation of cow's milk under the influence of rennin offers a much closer analogy to the coagulation of *Hevea* latex than does the clotting of milk by added acids or natural souring, and the salient agency in latex coagulation is probably enzymic.

The initial formation of the clot in fresh latex allowed to undergo natural change is probably due to enzymic action and the same agency, activated by acids, is probably responsible for acetic coagulation. Bacterial action is viewed, in regard to the occurrence of natural coagulation in latex, as a secondary factor only.

In addition to coagulation taking place ordinarily under the influence of an enzyme, there may occur under special conditions coagulation of other types—viz., the delayed coagulation in latex which has been subjected to sterilization, due to the ultimate putrefactive decomposition of the latex; the non-coherent coagulation produced by heat or by protein precipitants, particularly by tannic acid, and not improperly the coagulation produced by hydrochloric and nitric acids on the far side of the "gap" which is associated with the addition of increasing quantities of these acids to latex.

Very much remains for investigation in connection with latex coagulation. It is believed that at the present stage the enzymic hypothesis of coagulation affords the best explanation of the facts.

OYOGALITH, THE FRENCH GALALITH.

A French manufacturing company, called the Oyonnaxian Co., located at Oyonnax, a well-known French industrial center, has perfected a new non-inflammable product from casein similar but superior to German galalith. This product is designated as oyogalith and is sold under that name, manufactured into such articles as buttons, buckles, rings, combs, knife handles, etc. This new material is cited by "Le Caoutchouc et la Gutta-Percha" as one of the many successful substitutes for German-made material which has been developed during the war.

WATERPROOFING BRAIDED CORD.

Cord can be waterproofed either before or after braiding. Various methods of proofing, says the "Textile World Record," can be used in either case. For example, cotton yarn may be proofed in a solution of 30 pounds of alum in 50 gallons of water to which 30 pounds of sugar of lead has been added. The yarn must be soaked for two hours, after which it is lifted out of the solution and drained, then passed through a weak soap solution, which results in a deposit of an aluminate of the soap fat in the yarn. Or one can proof yarn in the following solution: dissolve 50 pounds of alum in 500 pounds of water, soak 50 pounds of glue in 10 gallons of water overnight, heat to boiling in the morning and when solution is complete stir in 2½ pounds of tannic acid and 1 pound of silicate of soda, add the entire quantity to the alum solution, mix thoroughly and cool to about 170 degrees F., immerse the yarn till saturated, squeeze and dry.

A mixture of rubber and paraffin wax waterproofs well; it also insulates. Melt 5 pounds of paraffin wax in an iron pot, add 1¼ pounds of scrap rubber, heat until rubber is dissolved, cool and permit solidification, then cut into cubes for use. Weigh the yarn or other material to be proofed in a dry state; for every eight pounds allow one gallon of benzine in which three ounces of the paraffin rubber mixture has been dissolved. Soak the yarn in the solution, which will soon be soaked up, then let the benzine evaporate; a waterproof deposit will be left on the yarn. If cable has been so treated, a finish may be given by passing it between heated grooved rollers, cable can be rubbed by paraffin wax before going through the rollers. Finally, cable can also be waterproofed by drawing it through melted paraffin in a long shallow pan, the cable being kept below the surface by guide rollers; upon leaving the pan of wax it is drawn between wipers, then through grooved finishing rollers and coiled.

DEPOLYMERIZATION OF RAW RUBBER.

K. Kawakami presents his views on the depolymerization of raw rubber in the "Journal of Chemical Industry," Tokio, Japan, of which the following abstract is made by the "Journal of the Society of Chemical Industry," London, August 31, 1918. The author criticizes and points out inaccuracies in the experiments by Takenchi, but agrees with the general proposition that viscosity measurements may be of value in controlling the processes of manufacture. The viscosity is not an absolute function of depolymerization, since it is affected also by the non-caoutchoue matters, namely, proteins and rubber resins, which will not change in the same proportion as the caoutchouc. The degree of variation of the acetone extract during mastication falls within the limits of experimental error. The viscosity of raw rubber cannot be used as a sole measure of valuation, because there are several factors of value which have nothing to do with the viscosity of the solution: for instance, the amount of impurities and loss in washing, also the physical and chemical properties of the vulcanized products. The proper periods of mastication obtained from Takenchi's curves, on the basis of an absolute viscosity of 0.1 in the rubber solution, work out at 40 minutes for plantation and 80 to 90 minutes for Brazilian *Hevea*, but these periods appear far too long from a technical point of view.

MOISTURE IN RAW RUBBER.

The following abstract is from a paper by G. Stafford Whitby, M. Sc., A. R. C. S. in the "Journal of the Society of Chemical Industry," August 31, 1918:

The present paper records observations made under actual tropical conditions on the variation of the water-content of raw rubber and the relation of this quantity to the humidity of the atmosphere, the form of the rubber, and the presence of serum solids. The observations were confined to rubber produced by acetic acid coagulation from the latex of *Hevea Brasiliensis*. The moisture content of both crêpe and sheet rubber was observed to exhibit a diurnal change, being on a normal day in the Eastern tropics, very markedly higher in the early morning than in the late afternoon. There is a general parallelism between the water-content of crêpe and the degree of humidity of the atmosphere.

The course of drying samples of latex crêpe from shortly after preparation to the time when they were dry showed that after the percentage of water had fallen to about one per cent the samples showed a negative state of drying between sunset to sunrise, the most humid part of the day, the rate of drying being influenced by variations in the degree of humidity of the atmosphere. Sheet rubber was found to be less sensitive than crêpe, as regards its moisture-content, to changes in the degree of humidity of the surrounding atmosphere. It exhibited smaller variations than crêpe in the percentage of water present at different times retaining a higher percentage of water in the middle of a hot, dry day, and absorbing less moisture over night. It is probable that the higher moisture-retaining capacity which sheet samples show under usual commercial conditions, depends upon the fact that the serum solids are removed from the coagulum less completely in the preparation of sheet than in the preparation of crêpes.

The greater readiness with which crêpe, as compared with sheet, increases its water-content in a humid atmosphere may probably be regarded as due to the much greater surface which

this form presents. It would seem that the greater the area of a rubber sample in relation to the weight, the greater is the sensitiveness, as regards water-content, to changes in the humidity of the surrounding atmosphere.

The author's chief conclusions are given as follows: The percentage of moisture in raw rubber in the form of sheet or crêpe varies considerably with the degree of humidity of the surrounding atmosphere. In rubber-producing climates it shows a diurnal variation. Sheet rubber tends to retain a higher percentage of moisture than crêpe. The moisture-retaining capacity of raw rubber is closely associated with the presence of serum solids. The latter are very hygroscopic.

CHEMICAL PATENTS.

THE UNITED STATES.

ELASTIC MASS.—An elastic mass and its manufacture. A vulcanized composition consisting of linseed oil which has been oxidized at a temperature of 200-250 degrees C., aluminum stearate, a mineral hydrocarbon of high melting point, an inert filler, and sulphur. (Eduard Salomon Ali Cohen, The Hague, Netherlands. United States Patent No. 1,280,129.)

VULCANIZING PROCESS AND COMPOUND.—Process of vulcanizing rubber-like material which comprises heating, under vulcanizing conditions, a mixture comprising such rubber-like material, a sulphur material and amino menthyl isopropyl benzene. (Chester E. Andrews, assignor to The Walker Chemical Company, both of Pittsburgh, Pennsylvania. United States Patent No. 1,280,940.)

THE UNITED KINGDOM.

SUBSTITUTES FOR EBONITE AND PRODUCT.—Ebonite substitute is derived from waste or new rubber dissolved in a vulcanizable oil such as rape seed oil, with which has been mixed by heat paraffin wax, stearin, or similar substances, and also resinous material. To this mixture is added finely divided filling material, sulphur and other vulcanizing material. The plastic mass is pressed or molded and vulcanized by steam. (Naamlooze Vennootschap Nederlandsche-Maatschappi tot Exploitatie Van Optimiet Fabricken, 200, Van Beuningen-straat, Amsterdam, assignees of S. van Raap, 102, Weesperzijde, Amsterdam. British Patent No. 118,270.)

VULCANIZING INDIA RUBBER.—The invention consists in heating the rubber, etc., previously mixed with a vulcanizing agent, and discontinuing the supply of heat when the rubber has expanded to an extent indicative of the degree of vulcanization derived. (W. J. Mellersh-Jackson, 28 Southampton Buildings, London. [Morgan & Wright, Detroit, Michigan, U. S. A.] British Patent No. 118,305.)

THE DOMINION OF CANADA.

RUBBER VULCANIZING PROCESS.—A method of accelerating a vulcanizing process which consists in adding to the rubber mixture an accelerator comprising caustic alkali dissolved in glycerol or glycol. (Douglas Frank Twiss, Sutton Coldfield, Warwick, assignor to The Dunlop Rubber Company, Westminster, London, both in England. Canadian Patent No. 185,317.)

THE FRENCH REPUBLIC.

RUBBER SUBSTITUTE AND PROCESS.—A composition consisting of fish oil or fish scrap relatively rich in fixed oil and a reducing agent, probably sulphur, by which under suitable treatment a commercial product results. (The Western Rubber Co., Tacoma, Wash., U. S. A., French patent No. 487,989.)

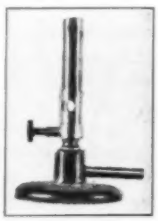
CALCULATION OF PRESSURE OF SOLID TIRES ON WHEEL RIMS.

E. Garabiol in "Le Caoutchouc et la Gutta-Percha," October 15, 1918, gives the derivation of a mathematical formula for calculating the compression required to secure the non-slip attachment of steel-rim solid tires to wheels under varying conditions of load and speed, giving also the details of calculation in an example.

LABORATORY APPARATUS.

A POWERFUL GAS BURNER.

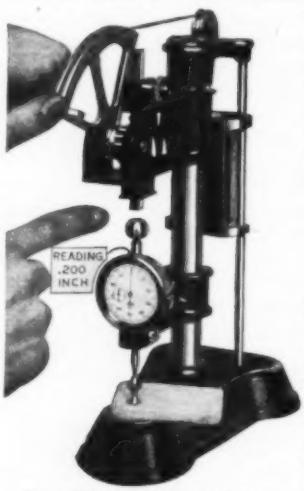
A VERY effective design of gas burner is the "Hughes-Amlasp" shown in the illustration. It is intended for general laboratory use, producing a flame of highest temperature without the use of blast. It burns either natural or artificial gas, and has means for air and gas regulation. By a special perforation system on the chimney, the gas is evenly distributed and mixed, giving an extremely hot flame, making this burner the closest approach to the blast burner. The temperature of the flame is uniform throughout; diameter of the flame, nine-sixteenths of an inch.—(American Laboratory Specialists, Pittsburgh, Pennsylvania.



HUGHES-AMLASP GAS BURNER.

RESILIOMETER.

The recently invented instrument known as the resiliometer is being adopted in rubber works laboratories for measuring the resiliency of cured rubber. The resiliometer was originally devised to measure the thickness, hardness and resiliency of mechanical felts for gaskets, washers and piano hammers. It is essentially a combination of a dial type micrometer with a presser foot and platform upon which the material to be tested is placed and a reaction device for determining the compressibility and resilience of the material.



THE WIDNEY RESILIOMETER.

To determine hardness, pressure is exerted on the material under the presser foot by means of the weight attached to the quadrant which sinks the presser foot into the material. The dial reading of thickness after compression, expressed in percentage of the reading of the original thickness, gives the degree of hardness. As the weight is removed after the hardness reading has been taken, the pressure of the weight is entirely released from the presses foot and another reading taken, thus giving the immediate resiliency of the material. (The Widney Company, 320 South Jefferson street, Chicago, Illinois.)

RHOTANIUM WARE.

Rhotanium is stated to be the only and original gold-palladium alloy. It is made in two grades for chemical purposes. Rhotanium "A" in its resistance to alkalies is superior to platinum, and its loss by volatilization at high temperature is also less than for platinum, with melting point at 1,253 degrees C. Rhotanium "C" has a melting point of 1,425 degrees C. Rhotanium ware for laboratory uses is made in all the forms for which platinum has ordinarily been used, with equal satisfaction in service and at much lower prices. (Palo Co., New York City.)

VISCOSIMETER.—A torsion viscosimeter consisting of a torsion element, means for indicating angular defection and an electric heating coil for controlling the temperature of the substance under test. (Ross F. MacMichel, Auburn, Washington. United States Patent No. 1,281,042.)

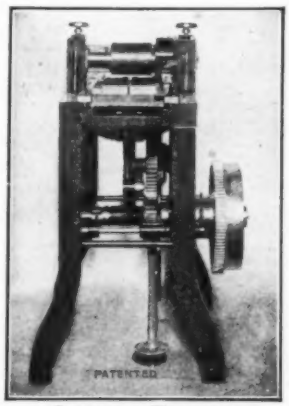
Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

New Machines and Appliances.

THE WARWICK RUBBER TRIMMER.

THERE are several types of overflow-trimming machines employing different forms of mechanical construction in accordance with the work to be performed.

The Warwick machine is designed to remove the rind from moulded rubber goods in large quantities, and employs a new mechanical principle in that the carriage supporting the die reciprocates under a revolving roller. Dies are made conforming to the particular article to be trimmed. In the case of rubber heels, the corresponding die is clamped to the platen and the operator places an untrimmed heel in the die. The machine is started by pressure on the treadle and the carriage carries the die under the roller which cuts the overflow. The finished heel is automatically ejected at the back of the machine and the carriage returns and stops, when the operation is repeated.



OVERFLOW TRIMMER.

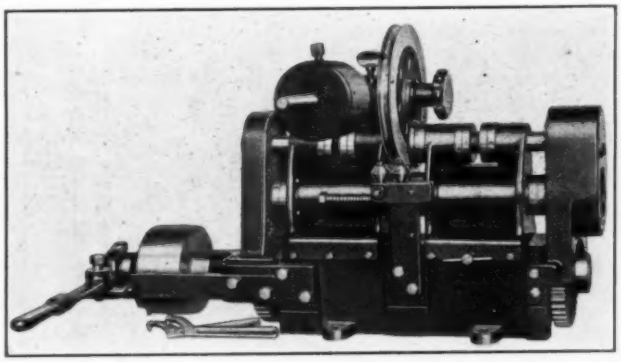
The output is limited only by the dexterity of the operator

The output is limited only by the dexterity of the operator, be done on the machine. (Rumrill & Co., 52-58 Purchase St., Boston, Massachusetts.)

TIRE-BEAD TRIMMER.

Trimming tire beads by hand is an obsolete process in modern plants, due entirely to the development of special bead-trimming machines. A row of hand bead-trimmers wielding heavy shears is rarely seen these days when labor-saving and production are the prime factors in tire making.

While the bead-trimmer shown in the accompanying illustration is familiar to most tire manufacturers, the fact that the present machine is the ultimate embodiment of many improvements, makes it worthy of mention.

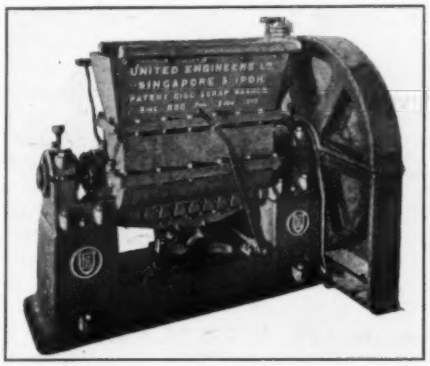


BRIDGEWATER TIRE BEAD TRIMMER.

The machine is simple to operate and in fact it is said that one boy can handle the bead output of the average tire plant, on this trimmer. Reduced to figures, the makers claim that this machine will trim about 90 feet of clincher bead per minute and 15 feet of straight side bead per minute. (Bridgewater Machine Co., W. E. Wilson, selling agent, Akron, Ohio.)

THE "U. E." PLANTATION SCRAP-WASHER.

The washer here pictured is specially designed for the purpose of producing clean crêpe from scrap, or blending tree scrap, bark shavings and earth pickings for the manufacture of uniform crêpe. Moreover, by washing out the sand, excessive wear on the rolls of the crêping and macerating machines is prevented.



A PLANTATION SCRAP WASHER.

The machine and driving shaft are mounted on a rigid bed plate, and the belt-driven shaft is provided with a friction clutch for starting and stopping the machine. On the shaft is keyed a machine molded double helical pinion that meshes with a large gear of similar construction, keyed to the washer-shaft on which are mounted solid disks that revolve within the casing.

The operate the machine, engage the clutch, thereby starting the disks revolving, then open the bottom valve and turn on a full head of water, allowing it to flow straight through the machine without flooding the hopper. In treating ordinary bark shavings containing about 30 per cent of rubber, fill the hopper with shavings half way up, and when the machine has worked this charge for a few minutes and passed away some of the bark, leaving space for more, refill hopper half way up. After the rubber is cleaned, close the bottom valve and flood the hopper with water, allowing the rubber to float to the surface, when it can be picked out by hand. Do not stop the machine, but allow the disks to rotate to enable the rubber that may be at the bottom of the hopper to be worked free and float to the surface.

To obtain the maximum results, remove the rubber as soon as it is formed into lumps, as by this time 95 per cent of the impurities is removed and the remaining 5 per cent can be washed away by the crêpeing machine when the lumps are being laced up and rolled into sheets. (United Engineers, Limited, Singapore, Federated Malay States.)

TRANSFER-PRINTING ON INNER TUBES.

The advent of the automobile called for a new kind of printing, that of transfers for imprinting the size and brand on the inner tube. In the early stages of the tube industry, the size and name were put on with stencils, a process neither satisfactory nor economical. After various stages of development, printed transfers were found to be the best.

Although there are different kinds and grades of transfers, all fundamentally alike, the best results, however, are secured by thin cloth, glazed on one side and printed with a sizing and then finished with a copper bronze. The greatly increased cost of cotton, as well as labor, makes these expensive. In curing the tube, the action of the sulphur causes the bronze to change to a dense black. The next best process is to print on the cloth with a special black ink.

Even before the increase of the price of cloth, many tube makers had adopted the use of paper transfers, as they were

much cheaper and gave satisfactory results so far as the transferring qualities are concerned. The only difference in results between the cloth and paper transfers is that of removing the stock after the tube comes from the vulcanizer. The cloth can be readily stripped from the tube, while the paper sticks more or less, according to the compound and the local conditions. Paper labels can be printed with bronze or black ink. In either case special ink and paper are used; the former must not dry hard, and the latter must not absorb the ink. It may be truthfully said that paper perfectly satisfactory for some makers has not been found to work under all conditions.

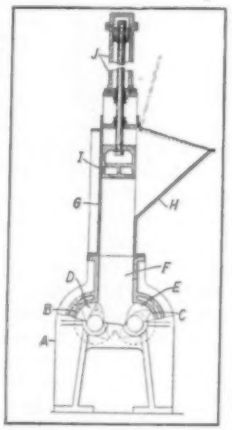
Printing transfers is a specialty for other reasons than the use of cloth, special paper and bronze or ink, as the type and cuts must be the reverse of those used for regular printing, except that of offset work, the imitation of lithograph, which has practically superseded lithography. After the transfer is printed the reverse of the regular way, it is placed on the sheet of rubber, wrapped around the tube mandrel which is then put in the vulcanizer and subjected to the curing heat. When the tube is taken from the vulcanizer the ink or bronze has left the cloth or paper and been transferred to the tube. (The Goshen Printery, Goshen, Indiana.)

MACHINERY PATENTS.

A DUST-PROOF MIXER.

THIS machine embodies radical improvements in the mixer described in THE INDIA RUBBER WORLD, July 1, 1917, such as a dust-proof hopper and a water-cooled feeding weight.

This invention employs, as in the previous one, casing *A* enclosing two parallel cylindrical chambers *B* and *C*, in which rotary blades *D* and *E* are mounted. The upper chamber *F* is open to the lower chambers. Casing *G* is provided with an opening on one side communicating with hopper *H* through which material is fed. Chamber *F* and that portion of the casing below the hopper-opening form a neck, the cross-sectional width of which is no greater than the distance between the centers of the blade axes. The length of the neck is equal to or greater than 1½ times the diameter of the blades and its cross-sectional area is more, and no less than 1¼ times the areas of the mixing chambers, excluding the space occupied by the blades.



BANBURY MIXER.

The material is forced down by weight *I* that is attached to the lower end of a piston-rod operating in cylinder *J*, and may be raised or lowered by any desired power. Preferably the length of the neck, where it is enclosed by four sides, should permit the weight to travel vertically a distance equal to two or more times the diameter of the rotary blades. By proportioning the neck to the size of the cylinders, the operation of feeding and treating bulky material is greatly facilitated. The hopper is provided with a cover consisting of a wire frame covered with fabric which admits air but prevents the escape of dust. (Fernley H. Banbury, Ansonia, Connecticut, assignor to Birmingham Iron Foundry, Derby, Connecticut. United States patent No. 1,279,220.)

United States patent No. 1,279,824 issued to the same inventor and assignor, covers an improved feeding chute, a blower for removing accumulations from the weight, provision for the escape of air and a rod for indicating the position of the weight.

"Rubber Machinery," by Henry C. Pearson, should be in the library of every progressive rubber man.

OTHER MACHINERY PATENTS.

THE UNITED STATES.

NO. 1,278,980. Shaping device for tire-building machine. F. C. Morton, Cambridge, Massachusetts, assignor of one-half to F. B. Carlisle, Cranston, Rhode Island, and one-fourth to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,279,214. Tire Core. C. F. Ames. Akron, Ohio.

1,279,337. Tire-making machine. W. B. Harsel, assignor to The Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,279,404. Annular shuttle for tire-wrapping machine. H. I. Morris, San Diego, California, assignor to The De Laski and Thropp Circular Woven Tire Co., Trenton, New Jersey.

1,279,405. Rotary shuttle for tire-wrapping machine. H. I. Morris, San Diego, California, assignor to The De Laski and Thropp Circular Woven Tire Co., Trenton, New Jersey.

1,280,003. Repair vulcanizer. R. P. Espinosa, Los Angeles, California.

1,280,230. Repair vulcanizer. M. P. Janisch, Milwaukee, assignor to D. W. Jones, Waupun—both in Wisconsin.

1,280,492. Fabric-coating and calendering apparatus. F. E. Kip, Montclair, and Edwin P. Ford, Morristown, assignors to The Duratex Co., Newark—all in New Jersey.

THE DOMINION OF CANADA.

185,197. Collapsible tire-core. T. Midgley, Sr., Columbus, and T. Midgley, Jr., Dayton, co-inventors, both in Ohio, U. S. A.

185,417. Ball mold. The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, Canada, assignee of H. Z. Cobb, Winchester, Massachusetts, U. S. A.

185,725. Tire vulcanizer. A. A. Bitter and H. K. Wheelock, coinventors, both of Los Angeles, California, U. S. A.

185,822. Tire vulcanizer. W. Reilly, Kerrisdale, British Columbia, Canada.

185,859. Tire-vulcanizing apparatus. The Doughty Tire Co., assignee of H. J. Doughty—both of Providence, Rhode Island, U. S. A.

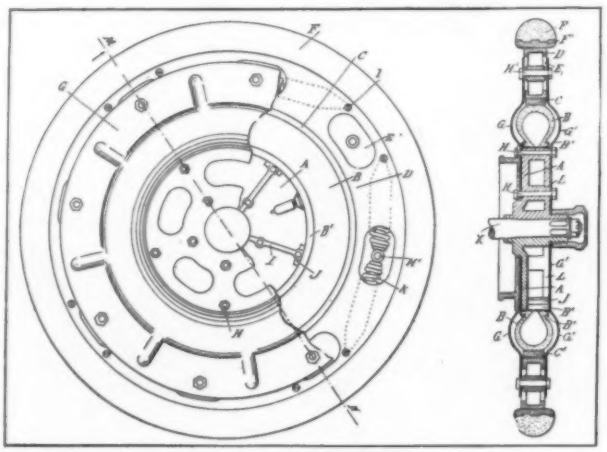
THE FRENCH REPUBLIC.

487,760. Improvements in hydraulic presses for vulcanization. V. Champigneul.

MISCELLANEOUS PATENTS.

A FRENCH CUSHION WHEEL.

THIS invention covers a vehicle wheel with an annular cushion resembling an ordinary pneumatic tire, arranged between the hub and the solid rubber tire of the wheel. *A* is the hub, *B* the pneumatic cushion, and *D* the rim that supports the solid tire *F*. Between the tread of the cushion *B* and the rim *D* there is loosely placed a metallic ring *C*. The metal side-disks *G* and *G*¹ are fastened to the hub by bolts *H* and to the hollow rim *D* by bolts *H*¹. The resilient power necessary between the disks *G* and *G*¹ and the rim *D* is produced by springs *K*, the ends of which are fixed to the rim and disks, respectively.



PNEUMATIC CUSHION WHEEL.

When the wheel turns, the hub carrying the pneumatic cushion and the disks revolves and transmits motion through the springs and the rim to the solid tire. (J. Gonzalo and R. de Dampierre. French patent No. 486, 944.)

PROCESS PATENTS.

THE UNITED STATES.

NO. 1,280,944. Process of manufacturing brushes having bristles set in rubber. T. F. Barry, assignor to Rubber and Celluloid Products Co.—both of Newark, New Jersey. (Original application divided.)

1,281,153. Belt-making process. C. C. Gates, assignor to The International Rubber Co.—both of Denver, Colorado.

THE DOMINION OF CANADA.

185,360. Process for vulcanizing rubber tire-treads to casings. W. B. Burke, Cleveland, Ohio, U. S. A.

185,653. Process for repairing punctured pneumatic tire casings. W. M. Rand, Vancouver, British Columbia.

THE UNITED KINGDOM.

118,305. Process of vulcanizing india rubber, etc. W. J. Mellersh-Jackson, 28 Southampton Buildings, London. (Morgan & Wright, Jefferson avenue, Detroit, Michigan, U. S. A.)

THE FRENCH REPUBLIC.

487,958. Process for impregnating and covering fabrics with balata without using solvents. L. François & Co.

SNOW'S COMPENSATING DENTAL VULCANIZER.

The fact that rubber shrinks in vulcanizing was brought to the attention of the dental profession over forty years ago. It is responsible for many of the mishaps that occur in the construction of artificial dentures, and is the cause of certain defects which render them unsanitary, and of others which must be remedied by the dentist before the denture is acceptable to his patient. These defects may be obviated by use of the compensating vulcanizer here shown.

COMPENSATING DENTAL VULCANIZER.

It has a flask-closing apparatus by which the flasks can be closed after they are placed in the vulcanizer, and at any time during the vulcanizing process, at the pleasure of the operator. This is done by the gradual pressure of springs which exert a constant force upon the rubber, following it up as it yields, preventing it from drawing away from the teeth or loosening its hold upon the toothpins, or from drawing away from and leaving an unsightly gap under the shoulders under the bicuspids and molars. As the amount of pressure exerted is shown by the index, the operator is enabled to use more or less, according to the circumstances of the case. As the springs are placed at the ends of the cross-head which actuates the flask-closing mechanism, they are not exposed to steam or moisture, and consequently will not deteriorate. (The Snow Dental Co., 448-50 Niagara street, Buffalo, New York).

TIRE FACTORY IN FORT WAYNE, INDIANA.

The Fort Wayne Tire & Rubber Co., Fort Wayne, Indiana, has bought a building site in the north part of the city, where it will erect a factory to cost approximately $30,000, for the manufacture of the "Wayne" tire. The property covers seven city lots and a plot of one and thirty-five-hundredths acres adjoining, or a total of two and one-half acres. It is located immediately west of the Lake Shore railroad tracks and the right of way of the Fort Wayne and Northwestern interurban line. This will be the first tire factory in Fort Wayne. The officers of the company are: L. R. Welker, L. E. Kraft and J. C. Brown, of Fort Wayne, Indiana; N. F. Rhoton, Bluffton, Indiana; O. W. Kuecken, Chicago, Illinois, and B. F. Henline, formerly with banks at Gibbon and Kearney, Nebraska. Mr. Kraft was at one time with the Hartford Tire Co., the United States Tire Co. and the Cadillac Automobile Co. Mr. Brown was previously with the Genoa Rubber Co., and is senior member of Brown & Kraft, makers and distributers of automobile tires and tubes.

CANADIAN NOTES.

IN accordance with its policy of welfare work for employes, the Dominion Rubber System has erected Dalhousie Hall at Port Dalhousie, Ontario, as a home for women and girls employed in the Maple Leaf Rubber Factory. The construction is of brick trimmed with carved stone, with oak doors, while the woodwork throughout is of satin-finished hardwood. The appointments include an electric range, cold storage and refrigerating facilities, steam boiler heating system, electrically driven pumps for supplying both hard and soft water, laundry, etc. The

DALHOUSIE HALL.

basement includes a large recreation room; the ground floor has a main hall with small reception and cloak rooms, the dining-room and kitchen, and the office of the social secretary. The first and second floors are used for tastefully appointed sleeping rooms. Lake Ontario is only a few hundred yards away, and T. H. Rieder, president of the company, has given permission for the erection of suitable bathing houses on his property along the lake shore above the beach for the accommodation of residents of Dalhousie Hall.

The Canadian Consolidated Rubber Co., Limited, Montreal, Quebec, has purchased a tract of land about 25½ acres in area in the neighborhood of the Delorimier race track, at approximately 33 cents a foot, where it expects to commence the erection of a new plant in the early spring to meet the increasing demand for its products.

The recently acquired building adjoining the Toronto branch of the Canadian Consolidated Rubber Co., Limited, comprises over 60,000 square feet of floor space. Among the improvements are show windows for the display of goods, lunch rooms for employes, and rest rooms for women workers.

Hugo Wellein, who was appointed acting treasurer of the Dominion Rubber System, Montreal, Quebec, in October, was elected treasurer at the November meeting of the directors. He succeeds Mr. Binmore, who has removed to California.

Canada oversubscribed her recent Victory Loan by about $200,000,000 in excess of the $500,000,000 objective.

Private W. C. Dies, formerly head of the shipping department of The Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario, lost both eyes and his right hand in the battle of Vimy Ridge and was awarded the Military Cross; but as soon as he heard that the subscription list of the Dunlop company was open for the Second Victory Loan he telephoned his personal subscription of $200.

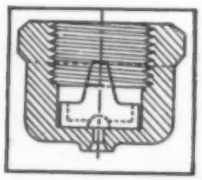
The Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario, subscribed $1,000,000 to Canada's recent Victory Loan, besides personal subscriptions made by officials and employes of the company. The factory and office staff also won an honor flag for obtaining subscription percentages set by the Victory Loan Committee.

Replete with information for rubber manufacturers—Mr. Pearson's "Crude Rubber and Compounding Ingredients."

New Goods and Specialties.

A SPRAY FOR ACIDS AND OTHER LIQUIDS.

THE hard-rubber spraying attachment shown in the adjoining cut operates with water or other liquid under pressure to produce an extremely fine spray. Owing to the resistance of hard rubber to corrosive action, this sprayer is particularly adapted for atomizing such acids as hydrofluoric, etc. The nozzle consists of the inside and the cap which fits directly on the pipe. The inside part gives the liquid the necessary gyratory action to produce atomization or spray. Clogging is reduced to a minimum because the slots on the inside part are large compared with the nozzle orifice. This nozzle can be cleaned without removal from pipe. The construction can be varied to suit the requirements, and the nozzle works in any position. (Monarch Manufacturing Works, Inc., 3129 Emery street, Philadelphia, Pennsylvania.)



HARD-RUBBER SPRAY.

ANOTHER CAP COVER AND CHECKERBOARD.

Although an armistice has been signed, it is probable that there will be officers in uniform for some time to come, so that another type of rubberized cap cover may not be amiss. As the officer is not allowed to carry an umbrella, such cap covers are an essential part of his equipment.

OFFICER'S RUBBER CAP COVER.

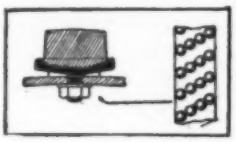
The one shown here is made of high-grade quality olive-drab rubberized material, silk-finished, light weight, and has an elastic inserted in the edbe to facilitate adjustment over the cap. This cover is also made in the regulation khaki color.

While the peace treaty is being prepared, the million boys "over there" will need something to do in spare moments and the familiar game of checkers in a new guise will find a welcome, as well as from other players on this side of the water who will appreciate a rubberized checker-board that can be rolled or folded into small space. This particular board is made of rubberized khaki material and is accompanied by 24 wooden checkers of contrasting colors. (Felsenthal Bros. & Co., 512-520 South Fifth avenue, Chicago, Illinois.)

RUBBERIZED KHAKI CHECKER BOARD.

A PATENTED STUD FOR TRACTOR WHEELS.

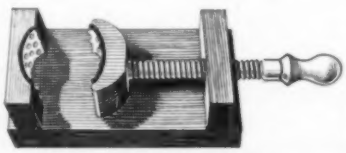
A new device intended to be secured to the rims of agricultural tractor wheels so as to give them a grip on both soil and road, is the rubber stud of which a cross-section and drawing are shown herewith. Cylindrical pieces of solid rubber are vulcanized onto circular metal pieces having projections in bolt form underneath, thus making possible their application by any blacksmith and also allowing for replacement when worn. The metal base to which the studs are attached is adapted for attachment to rims of different widths. (Dunlop Rubber Co., 14 Regent street, London. United Kingdom patent No. 118,149.)



TRACTOR-WHEEL STUD OF RUBBER.

FOR HOME CANNERS.

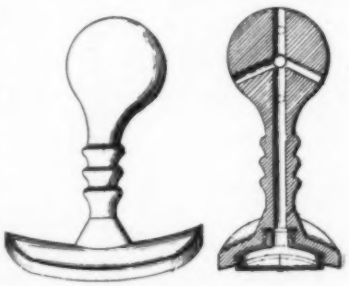
Against the time when fruit shall be ripe again and the housewife preparing it for winter use, somebody has devised a new kind of jar-holder, which, while simple in construction, is at the same time efficient. It is made entirely of wood. On the base is fastened a wooden block with a curved inner face to conform to the shape of a fruit jar. Opposite this block, attached to a screw, is an adjustable curved jaw by which the jar is held. The jar-gripping elements are rubber-lined. (W. J. McCallum, Evanston, Illinois.)



RUBBER-LINED JAR HOLDER.

COMBINED SUPPORT AND APPLICATOR.

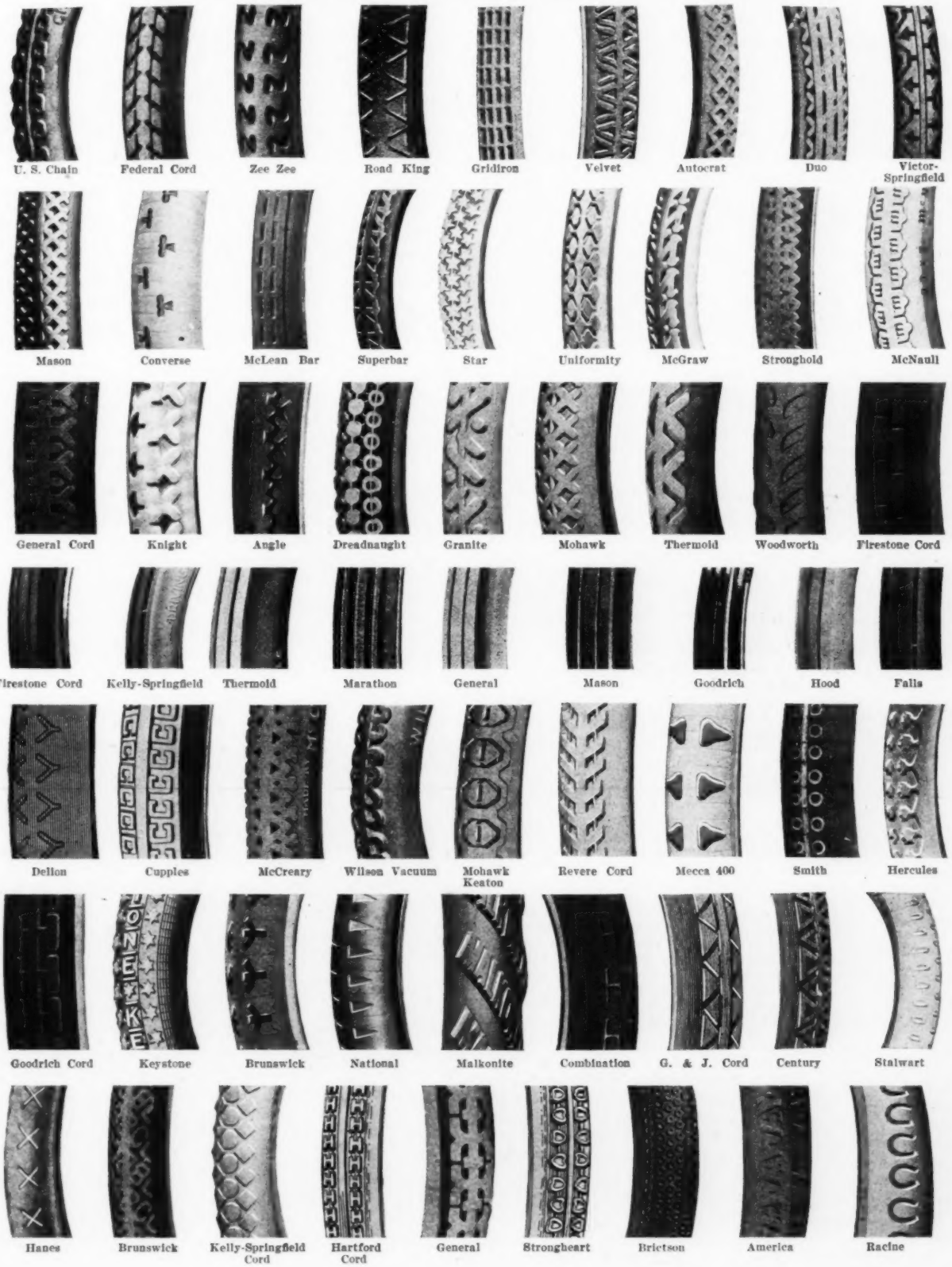
The object of the instrument illustrated in the adjoining drawing is two-fold—to provide a support for protruding piles and, at the same time, an applicator of medicament to piles or hemorrhoids. The instrument is made of rubber, but when intended for use as a support, is made of harder or less pliable rubber at the base and ball, the neck being of more flexible rubber. The cross-sectional view shows the device as an applicator with a detachable medicament container inserted in the recess at the bottom. The bottom of the container is collapsible so that pressure on it causes portions of the medicated charge to be expressed at predetermined intervals. The containers are to be filled separately at the factory and sealed, thus providing sanitary means of application. The base of the instrument is so shaped as to prevent unintentional pressure on the base of the container. It is claimed for the invention, which has recently been patented, that it can be worn without discomfort or inconvenience. (John T. Landis, Nashville, Tennessee.)



RUBBER PILE SUPPORT.

"KOLD PROSSO" JAR RINGS ARE A NEW BRAND ADAPTED FOR COLD-process canning. (Smalley, Kivlan & Onthank, Boston, Mass.)

Some American Automobile Tire Treads.



The Great Rubber Surplus.

THE belief that there will be 80,000 tons of surplus rubber in and about the Federated Malay States between the present time and June, 1919, naturally stirs the British planters and plantation shareholders. Personally we are of the opinion that this surplus will be absorbed before that time, and not only that but for the year 1920 so great will the world's rubber business be that manufacturers will be fearful of a shortage. Time will of course prove the truth or falsity of this prophecy.

To the pessimists, or perhaps the clear-sighted, come many remedies. The most popular which has been advanced from various sources is a sort of valorization plan. A writer to one of the London papers advocates a selling association thus:

I am not a selling agent and have no interest in sales, but I would suggest that a great obstacle to any arrangement would be removed by limiting the selling association to a term of five years and agreeing that the companies joining the association should continue existing emoluments to agents during that term. I would suggest a selling association with a capital in £10 shares, the capital to be issued to companies in the proportion of £1 for each cultivated acre. Of the capital £2 per share only to be called in calls of £1 each, the balance to remain as a guarantee. I would suggest an initial capital of £1,000,000, which could be increased as the number of members grew. The association would take delivery of the rubber of its members and either sell it, warehouse it, lend on it, or carry on any other usual business, etc., at ordinary rates. In addition, it should charge ½*d.* per pound, out of which the administration costs would cover any sulplus profit accumulating for distribution at the termination of the association. The advantages of such an association would be so great that I am certain that any companies that did not come in at the beginning would later on be eagerly seeking membership. I would suggest that the Committee of Young Producers should lose no time in preparing a scheme and submitting it by circular to the London companies.

The London "Statist" suggests a plan analogous to the Australian Zinc Producers' Association, Limited, thus:

The agency companies and administrative groups could vest their rubber selling and crop financing in it, the purchase considerations, as agreed upon, to be payable in debentures, preference or ordinary shares. Warehouses, wharves and other necessary adjuncts to be obtained and the facilities to be expanded as required. Thus would be constituted a considerable portion of the necessary fixed assets and good will of the undertaking on the selling end of the business. Assuming for the purpose of illustration that producers of a full crop-producing capacity of 100,000 tons per year would participate, a common basis for acquiring a share interest would have to be arrived at, say, perhaps 6*d.* per pound on the annual producing capacity, which roughly represents the funds required to finance production for three months at 2*s.* per pound. The aggregate sum would be £5,600,000. A company of individuals producing 250,000 pounds per year would take up £6,250 of, say, £1 shares. The corporation would purchase the rubber at the average price ruling for the year, charging a commission on a graduated scale per pound, rising with the average price paid. The better the average price, the higher the commission paid, the greater the benefit to the producers, and the higher the earning power of the corporation. Crops requiring to be financed in excess of the proportion covered by the actual funds at the corporation's disposal could be covered by bills and bankers' advances.

Whether any of these plans are carried out, certain it is that for a time at least, much plantation rubber must be stored, in fact is being stored. If it were upriver fine or coarse, we would know all about its keeping qualities in storage. But for plantation crêpe prepared in a variety of ways, neither planter nor manufacturer has anything but judgment to go on.

Mr. Sidney Morgan of the Research Laboratory in Petaling, Federated Malay States, gives the following as his plan for preparing and storing rubber so that it may not deteriorate:

(1) Correct preparation of the rubber.

(2) Thorough drying of crêpe rubber; and thorough drying and smoked curing of smoked sheets.

(3) In the case of crêpe rubber it would be advisable to prepare only the thin variety so that drying can be seen to complete.

(4) In the case of smoked sheets they should be marked with a distinct ribbed pattern, preferably of the close-spiral type.

(5) All wooden boxes should be perfectly dry before use. As a regular precaution the wood should be placed in the sun for several days. The use of damp boxes is a frequent source of troubles.

(6) Packed boxes should never be placed on a cement floor. A wooden floor is advised and even then the boxes should rest upon beams or rails so that there is open ventilation between the floor and the bottom of the boxes.

(7) Boxes should be placed with a small space between them in all possible directions, so that the surfaces obtain the maximum ventilation.

(8) The building should be so designed as to permit of all windows being opened without the admission of direct sunlight. This can best be effected by means of verandas all round the building.

(9) If possible the floor of the building should be raised from the ground to the height of a bullock-cart or motor lorry. This will ensure better ventilation; and will facilitate easier handling of boxes from a loading platform.

(10) The building should have the best possible ventilation either by ordinary means (e. g., a good jackroof) or by mechanical devices. It should be a separate building and no moist rubber should be allowed to hang in the upper stories.

(11) Other factors such as the situation of the building, etc., will appeal to anyone who studies the question.

In reviewing all of the above they do not seem wholly sound, nor adequately to cover the ground. As some one has wisely said, the best place to store surplus rubber is in the tree.

As therefore England, France and the United States are planning cooperative farming, and economic growing and distribution of foodstuffs, why not apply the same system to rubber—cooperation?

Tapping carried out with wisdom and fairness would seem to offer a solution.

AMERICAN SOLDIERS LEARNING TO REPAIR TIRES IN THE MODEL FIRESTONE REPAIR SHOP AT AKRON, OHIO.

Should be on every rubber man's desk—Crude Rubber and Compounding Ingredients; Rubber Machinery; Polyglot Rubber Trade Directory; Rubber Country, of the Amazon; and What I Saw in the Tropics.

News of the American Rubber Industry.

AN ACTIVE WORKER IN CONNECTION WITH THE WAR INDUSTRIES BOARD.

ONE of the men who is doing most valuable work for the Government, is J. C. Matlack, one of the assistants to Harry T. Dunn, chief of the Rubber and Rubber Goods Section of the War Industries Board. As a young man Mr. Matlack was employed by the Simmons Hardware Co,. St. Louis, Missouri, rising to be head of the bicycle and accessory department of that concern, after which he left to become eastern sales manager of the A. Fetherstone Co., Chicago, Illinois. On the organization of the American Bicycle Co. he was appointed purchasing agent for the more than sixty factories, and in 1901 was made the company's western sales manager.

J. C. MATLACK.

The following year he resigned and became president of the International Automobile and Vehicle Tire Co., Milltown, New Jersey. When this company was succeeded by the Michelin Tire Co., he was made vice-president and general manager, retaining those offices until 1911, when he joined the newly organized Ajax Rubber Co., New York City, as secretary and general manager. During the six years he was with the Ajax company the value of the business was multiplied many times. Mr. Matlack was elected vice-president of the American Writing Paper Co. in 1917, resigned during the present year, and returned to the rubber business, becoming president and general manager of the Globe Rubber Tire Manufacturing Co., of Trenton, New Jersey.

PERSONAL MENTION.

Frank R. Carroll has been promoted to the district managership of The B. F. Goodrich Rubber Co., Akron, Ohio, in San Francisco. He was formerly manager of the Los Angeles branch.

H. L. Hall has been appointed branch manager at 1328 Michigan avenue, Chicago, Illinois, for The Swinehart Tire & Rubber Co., Akron, Ohio. He has been connected with the automobile and bicycle business for a number of years and for the last eight years has had charge of the western territory of the Troy Carriage Sunshade Co., Troy, Ohio, manufacturing automobile specialties.

Lewis E. Klug, formerly with the Victor Tire & Rubber Co., Springfield, Ohio, has been appointed factory superintendent of the Electric Rubber Reclaiming Co., Barberton, Ohio, succeeding J. F. Johnston, resigned.

J. S. Benner, secretary of the Electric Rubber Reclaiming Co., Barberton, Ohio, has been appointed general manager, also.

Garfield List recently succeeded S. S. Poor as district manager of the United States Tire Co., New York City, in Philadelphia, with headquarters at 329 North Broad street.

G. A. Binz, sales manager for the Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pennsylvania, has transferred his headquarters to the company's New York office, at 90 West street.

R. H. Wilson has been appointed assistant to the president of the Walter A. Zelnicker Supply Co., St. Louis, Missouri, dealer in machinery, mill and factory supplies, etc.

E. O. Griffin, well-known in southwestern railroad circles, has been appointed representative of the Walter A. Zelnicker Supply Co., St. Louis, Missouri, at Houston, Texas, succeeding R. H. Wilson.

Ernest Newton, a salesman for the Sterling Tire Corp., Rutherford, New Jersey, in the Hartford, Connecticut, territory, has been appointed manager of the Hartford branch, succeeding W. H. Lacey, now in government service.

Julius Lichtenstein, president of the American Sumatra Tobacco Co., has been elected a director of the Keystone Tire & Rubber Co., New York City.

On and after January 1, 1919, Byron T. Mottinger, E. E., will be associated with the Quaker City Rubber Co., Wissinoming, Philadelphia, Pennsylvania, as chief engineer and master mechanic. He is now general superintendent of power of the Fort Dodge, Des Moines & Southern Railroad, Boone, Iowa.

TRADE NOTES.

The Republic Rubber Corp., Youngstown, Ohio, has acquired the entire assets of The Knight Tire & Rubber Co., Canton, Ohio, and has taken over the operation of the Knight plant. The selling organization of the Knight company will continue indefinitely under that name and the capital stock has been reduced from $1,500,000 to $15,000.

The Alling Rubber Co., Danbury, Connecticut, has removed from 264 to 268 Main street, where is has nearly double floor space and better shelving accommodations. The comapny intends to add new lines. It now deals in rubber goods, automobile tires and supplies.

The plant of the Rubber & Celluloid Products Co., 56 Ferry street, Newark, New Jersey, situated on Wilson avenue of the same city, which was recently destroyed by fire, will be rebuilt at an approximate cost of $50,000. The new structure will be one and two stories in height, 42 by 390 feet. The officers of the company are: A. Albright, Jr., president; T. B. Denton, vice-president; T. M. Kays, secretary, and C. M. Freeman, treasurer. This concern manufactures the "Rubberset" brushes.

The Combination Rubber Manufacturing Co., Bloomfield, New Jersey, manufacturer of "Viking" tires and tubes and mechanical rubber goods, at the annual meeting of its stockholders on November 4, elected the following officers: William H. Servis, president; Horace T. Cook, vice-president; Fred L. Conover, treasurer; Frank W. Servis, secretary; Arthur R. Colvin, factory manager, and William A. Robbins, superintendent.

The Denver Rubber Co., 1645 Lawrence street, Denver, Colorado, western distributor for The B. F. Goodrich Rubber Co. Akron, Ohio, has four men—Ferguson, Davis, Cary and Holmes, its entire force of traveling salesmen—in service. The officers of the concern include R. A. Kincaid president and treasurer, and V. C. Wist, secretary. It was established in 1889.

The George W. Eno Rubber Co., Inc., has just moved into its new building at 1159-63 Post street, San Francisco, California, which will be the headquarters for its business north of Tehachapi. R. T. MacMillin, managing director, is in charge of this

territory. The company is the Pacific Coast representative of the Akron Rubber Mold and Machine Co., Akron, Ohio.

Brighton Mills, Passaic, New Jersey, have discontinued their New York office at 257 Fourth avenue, and hereafter will handle all business from their office at Passaic, New Jersey. The officers of the company are: William L. Lyall, president and treasurer; Harry V. R. Scheel, assistant treasurer; Thomas M. Gardner, secretary; and Timothy J. Kelly, superintendent.

The Sterling Tire Co., 234 West 55th street, New York City, has registered with the Secretary of State of New York and received authorization to do business in that State. The concern is a Delaware corporation.

The Owen Tire & Rubber Co. has removed its office from 1900 to 2336 Euclid avenue, Cleveland, Ohio, but correspondence should be directed to the factory at Bedford, Ohio.

The Manhasset Manufacturing Co., Putnam, Connecticut, manufacturer of tire fabrics and yarns, has recently completed a two-and-one-half-story addition, 60 by 60 feet, to its main mill, and will use it for plant extension in the general manufacture of tire duck.

The Eagle Packing & Rubber Co., Inc., 123 Chambers street, New York City, manufacturer of asbestos packings and mechanical rubber goods, has leased the second loft at the above address. H. W. Austin is president of the company and J. E. Paul is superintendent of production.

The rubber substitute and chemical business of the late George F. Lufbery, Jr., at Elizabeth, New Jersey, has been taken over by W. J. Moren, who has been in Mr. Lufbery's employ for the past eleven years. The business will be continued along the same lines as formerly.

The Cameron Machine Co., 51-61 Poplar street, Brooklyn, New York, has opened a new sales office and service station at 503 First National Bank building, Cincinnati, Ohio, in charge of Frank C. Risselt, who is well-known to the rubber trade.

The Guaranteed Tire Service Co., 241 Main street, Dubuque, Iowa, has changed its name to Tire Service Co. It has also discontinued acting as distributor for the Savage Tire Corp., San Diego, California, and is now exclusive branch distributor for the entire line of the Miller Rubber Co., Akron, Ohio, covering northeastern Iowa, southwestern Wisconsin and northwestern Illinois. A large tire-repair plant has been installed, which makes a specialty of retreading.

The Ehman Tire & Rubber Co., La Salle and 27th streets, Chicago, Illinois, has changed its name to the Inland Rubber Co., which name will be used in all business transactions on and after December 1, 1918.

GOODRICH IN CALIFORNIA.

M. D. Bixby was recently appointed manager of the Los Angeles, California, branch of The B. F. Goodrich Rubber Co., Akron, Ohio, controlling all Southern California and Arizona territory. Mr. Bixby has been with the Goodrich company since 1914 and previous to that time was with the Diamond Rubber Co. in Chicago. He has made the following appointments in his territory: L. E. Nollen, district superintendent of operations; E. G. Ketchum, manager mechanical sales; M. B. McKinsey, manager pneumatic tire sales; E. W. Perry, manager of truck tire sales; G. M. Gay, in charge of service department; J. F. Howard, manager of credit department; B. Schuttere, manager of traffic department, and E. Hegerling, manager of stock department.

PRODUCTION OF RUBBER IN FIJI ISLANDS.

The British Trade Commissioner to New Zealand, who has lately visited the Fiji Islands, reports that rubber cultivation is receiving much attention there, New Zealand farmers having started large plantations on Fiji lands of a suitable nature. Quantities of rubber of a very high grade have already been produced.

DIVIDENDS.

The Ajax Rubber Co., Inc., 1796 Broadway, New York City, has declared its quarterly dividend of $1.50 per share, payable December 15 to stock of record November 30, 1918.

E. I. du Pont de Nemours & Co., Wilmington, Delaware, declared a dividend of one per cent, payable November 11, for the benefit of the United War Work Campaign, the checks being specially marked and the recommendation made that they be turned over directly to the fund by the recipients.

The General Electric Co., Schenectady, New York, has declared quarterly dividends of $2 per share and two per cent in common stock at par, both payable January 15, 1919, to stock of record December 7, 1918.

The Mason Tire & Rubber Co., Kent, Ohio, on October 31, declared a six per cent cash dividend, payable at the rate of two per cent on the 20th of February, May, and August, 1919.

BOSTON TO SAN FRANCISCO LINKED BY MOTOR TRUCKS.

Two three-ton motor trucks of The Goodyear Tire & Rubber Co. recently made a successful journey from Boston to San Francisco and return, a distance of 7,763 miles. The freighters left Boston on September 1, with a cargo of airplane tires for the military authorities at San Francisco, and completed the 3,700-mile run in 21 days, allowing a one-day stop at Akron, Ohio. The trucks followed the Old Post Road to New York, then the Lincoln Highway to San Francisco, by way of Philadelphia, Pittsburgh, Akron, Fort Wayne, Cedar Rapids, Omaha, Cheyenne, Salt Lake City, Carson City, Sacramento and Stockton.

From San Francisco the trucks proceeded to Los Angeles, by way of Stockton, Fresno and Bakersfield, and thence over the National Old Trails Route, through the Mojave Desert and Needles, California, to Phoenix, Arizona, where the Goodyear

BOSTON—SAN FRANCISCO FREIGHT TRUCKS.

cotton plantation is located. Here a load of baled cotton was taken on for delivery to the Goodyear Cotton Mills, at Goodyear, Connecticut.

Doubling back to Ash Fork, Arizona, the trucks picked up the National Old Trail and continued on through Flagstaff, Albuquerque, Santa Fe, Las Vegas, Trinidad, Kansas City, St. Louis, Indianapolis, Dayton and Columbus to Akron, and from Akron to Boston over the regular route through Pittsburgh, Philadelphia, and New York.

The trucks were equipped with 44 by 10-inch all-weather cord tires on the rear wheels and 38 by 7-inch, rib-tread tires on the front wheels.

RUBBER PLANTING A FAILURE IN HAWAII.

Rubber planters in Hawaii who some years ago took up Ceara rubber cultivation in vigorous fashion, are being disappointed in their expectations. In fact, a very great part of the plantations has already been abandoned or planted to other crops.

FIRE LOSS EXPERIENCE IN RUBBER FACTORIES.

IN the October issue of the "Quarterly of the National Fire Protection Association" the fire experience of rubber factories is reviewed. The study includes all the fires in rubber works that have been reported to the association, and practical conclusions deduced as follows:

By far the largest causes of rubber factory fires are static electric sparks and the ignition of inflammable vapors, the two being so closely associated that it is difficult to draw any hard and fast line between them. It is interesting to note how the record tallies with the investigations of F. J. Hoxie as to the periodicity of fires due to static electricity. A tabulation, according to months, of the 73 fires of this general character included in the record shows the following:

	No. of fires.		No. of fires.
January	10	August	2
February	21	September	2
March	8	October	5
April	13	November	6
May	1	December	4
June	0	Exact date unascertained	1
July	0		
Total			73

These figures, which were obtained from a wider geographical field and over a longer period of years than were covered by Mr. Hoxie's detailed and comprehensive studies in New England factories, differ somewhat from his results in respect to the distribution between the months from November to April, but they amply confirm his general conclusions regarding the increased incidence of such fires during the winter months. The problem of grounding, and keeping effectively grounded, all machines at which static electricity is likely to be generated has not yet been completely solved, though it would appear that in some factories the hazard from this source has been much more effectively taken care of than in others. Inasmuch as these fires are frequently attended with serious injury to the employes, and occasionally loss of life, it is an obvious duty of good management to take every possible precaution to safeguard this hazard. Use of the Chapman neutralizer and of appliances for humidifying the atmosphere and thoroughly grounding—in some cases of the employe as well as the apparatus—are the most generally recognized remedies.

Hazardous processes like spreading and cement mixing should be conducted in properly isolated buildings or rooms, and material waiting to be spread should not be kept in a location to which a fire originating at the spreader machine may easily communicate. To store valuable goods underneath rooms in which spreading is done is also bad practice, and several instances have been reported involving heavy damage when water used to extinguish a spreader fire ran down into floors below. Naphtha, gasoline and benzine should, of course, be stored in an approved manner, and the utmost care is necessary in the matter of lighting in the presence of inflammable vapors. If it is necessary for a watchman to pass through the cement-mixing room, he should not be permitted to use an ordinary lantern, and while an ideal condition might be the complete prohibition of artificial light in buildings or rooms in which hazardous liquids or solutions are stored, it is certainly better to have a well installed system of electric lamps with keyless sockets and vapor proof globes than to omit all provision for illumination and use open lights in times of emergency when the factory may be in operation at night.

On the whole, the not unsatisfactory character of the record emphasizes the fact that the chief cause of the fire waste is not the presence of hazards too severe for human control, but a false sense of security in relation to hazards that do not seem severe enough to be worth the exercise of ordinary human intelligence to combat.

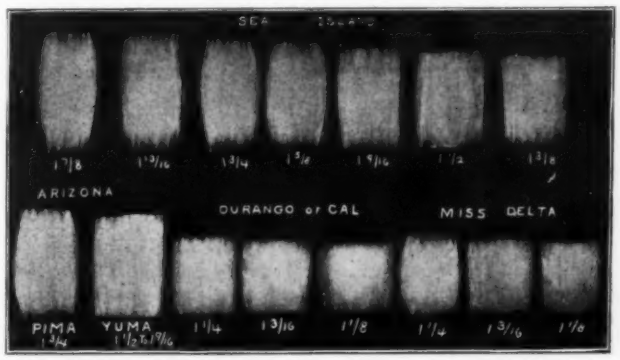
LONG-STAPLE COTTON IN INDIA.

Cotton growing and cotton weaving have been important factors in the remarkable industrial development of India, which has become one of the great surprises of the war. During the fiscal year ended last March, production in the cotton-weaving industry rose by more than 500,000,000 yards, or nearly 50 per cent, above the pre-war average, while imports by sea fell by 1,076,000,000 yards, or 41 per cent, to 1,055,000,000 yards.

All Indian cotton is of the short-staple variety, and this has tended to restrict weaving to coarser grades of cloth, but American long-staple cotton is now being introduced with promise of some success.

LONG-STAPLE COTTON VARIETIES GROWN IN AMERICA.

OF all the long-staple cotton varieties grown in the United States and the adjacent islands Sea Island is by far the best. There are three grades—Carolinas, Floridas and Georgias—ranking in the order given. The yield of seed cotton is 500 pounds and that of lint cotton is 125 pounds to the acre, the bales weighing 400 pounds. Average length of the staple is 1¾ inches, while the extremes of short- and long-staple are 1⅜ to 2½ inches. On account of the damage by the boll-weevil and unfavorable



U. S. Department of Agriculture.

SEA ISLAND AND AMERICAN LONG-STAPLE COTTON.

weather conditions the 1918 crop will be small. The ginners' report shows 24,145 bales of Sea Island cotton ginned up to November 21, 1918, compared with 68,229 bales for 1917.

Arizona cotton grown in the Salt River valley is destined to supplant Sea Island grades and, for that matter, Egyptian-grown cotton as well. The local varieties are known as Pima and Yuma cotton, which were developed from selected Egyptian cotton seed. About 75,000 acres of these two varieties will be planted this year, the yield being about one bale of 500 pounds to the acre. The length of the Pima staple is 1¾ inches and that of the Yuma variety ranges from 1½ to 1-7/16 inches. Last season's crop was 14,200 bales, while the present season's crop is estimated at 40,000 bales. About 30 per cent of the cotton grown in the Imperial Valley of California is the long-staple Durango variety. It is estimated that 35,000 acres of this cotton will be planted this year. The production is about three-quarters of a bale of 500 pounds to the acre. The staple is from 1-3/16 to 1¼ inches long. Last year's crop was 13,000 bales, no figures being available for the present season. The long-staple cotton that is grown on the low lands of Alabama, Mississippi, Louisiana and Arkansas is known as "Peelers," "Benders," "Allen," etc., these terms relating only to the length of staple. The production of this particular variety for 1917 is estimated at 75,000 bales of 500 pounds. The length of the Mississippi Delta staple varies from 1⅜ to 1¼ inches. No exact figures are obtainable with regard to the production of American long-staple cotton. However, the Bureau of Crop Estimates has supplied the following estimated production for last season's crop:

Length, Inches	Mississippi. Bales.	Louisiana. Bales.	Arkansas. Bales.	Totals. Bales.
1⅛ to 1¼	404,000	23,000	209,000	636,000
Over 1¼	45,000	3,000	25,000	73,000
Totals	449,000	26,000	234,000	709,000

The Editor's Book Table.

NINETEENTH YEAR BOOK, 1918. THE RUBBER ASSOCIATION of America, Inc., 52 Vanderbilt avenue, New York city. (Paper covers, octavo, 120 pages.)

THIS annual publication follows its predecessors closely in style and contents, giving in well-arranged form lists of officers, directors, standing and special committees, and membership, the constitution and by-laws, and the reports of officers and chairmen of the various committees and trade divisions. There are also included the addresses delivered at the annual dinner last January, as well as half-tone illustrations from photographs taken at various meetings of the association. From the secretary's report we learn that there are 315 firm members and 249 associate members, a larger membership than ever before in the history of the association. The treasurer's report shows the finances to be in excellent condition.

CHEMICAL ENGINEERING CATALOG. THIRD ANNUAL (1918) Edition. The Chemical Catalog Co., Inc., New York. (Cloth, 9 by 12, 836 pages. Price, $5.)

The third annual edition of this valuable reference work is intended for the use of chemical engineers, buyers and others seeking information on chemical and metallurgical equipment, machinery, chemicals and supplies. It is a collection of condensed catalogs and indexed data compiled by the publishers under the supervision of a special committee representing the American Institute of Chemical Engineers, American Chemical Society and the New York Section of the Society of Chemical Industry. Free distribution of the book is limited to chemical engineers, superintendents, buyers and others in responsible charge in manufacturing establishments, and to chief chemists and to departments of chemistry in universities, colleges and technical schools.

PRACTICAL INSTRUCTION ON ELECTRICAL FIRE HAZARDS. By Thomas Henry Day. The Insurance Institute, Hartford, Connecticut. (Pamphlet, 16mo, 120 pages, illustrated.)

This is a series of lectures given before the Insurance Institute by Mr. Day of the New England Insurance Exchange. It treats of the proper installation and the later inspection of electric wires and appliances, shows the causes of fires through overheating, short-circuiting, electrolysis, grounding of current, etc., and the results of non-compliance with the necessary rules for safe installations. The book contains many diagrams and halftones from photographs of faulty work and the fires or leaks resulting therefrom.

COMMUNICATIONS OF THE NETHERLAND GOVERNMENT INstitute for Advising the Rubber Trade and the Rubber Industry. Part VII. By Dr. G. van Iterson, translated by J. C. van Marken. International Association for Rubber Cultivation in the Netherland Indies, Delft, Holland. (Paper covers, 39 pages.)

This is the final instalment of English translations of a Dutch work published in 1916. It consists of chapters on "Porosity of Vulcanized Rubber" and "Remarks on the Nature of the Vulcanization Process." Much valuable information has been made available to the American and English rubber trade through the translation of the original Dutch report of the institute's original investigations on the characteristics of crude rubber, methods for its valuation and the chemical and physical changes induced by vulcanization.

A. S. T. M. STANDARDS, 1918. PUBLISHED BY THE AMERICAN Society for Testing Materials, Philadelphia, Pennsylvania. (Size, 6 by 9 inches, 908 pages. Price $9.)

This compilation embraces a large number of standard specifications, tests, methods, definitions and recommended practice of interest to engineer and chemist. The specifications cover ferrous and non-ferrous metals, cement, lime, gypsum and clay products and miscellaneous materials, among which rubber is included. Rubber manufacturers, and rubber chemists will find data of interest in the specifications on cotton rubber-lined rubber hose and air line hose for pneumatic tools; in the tests for cotton rubber-lined hose; standard methods for analysis and test of white pigments; dry red lead; coal; yellow-orange, red and brown pigments containing iron and manganese.

GIDS VOOR BETREKKINGZOEKENDEN IN DE CULTURES TER Oostkust van Sumatra. Dr. Ch. F. Haje, Middelburg, Holland. Publisher, J. H. de Bussy, Amsterdam, Holland. (Paper cover, 75 pages, map, 8 full-page illustrations.)

The object of this work is to acquaint young Hollanders intending to seek positions on plantations on the East Coast of Sumatra with their future surroundings and, to a certain extent, with their prospects. After a brief historical review and sketches of Belawan and Medan, a clear summary of the various products and the work connected therewith is given. There is a chapter on Eastern labor, the manner of recruiting, and hints regarding the attitude to be adopted toward coolies of different nationalities. Another chapter deals with the Occidental staff, salaries, promotion, etc., and points out various questions to be considered by married men. The program of the first course in Indology, instituted by the Kolonial Instituut, Amsterdam, recommended to the prospective assistant, completes this useful little book.

NEW TRADE PUBLICATIONS.

IN LINE WITH THE NATION-WIDE MOVEMENT FOR THE CONSERVAtion of pneumatic tires, the Miller Rubber Co., Akron, Ohio, has recently issued a new tire repair book designed for the use of the car-owner. It takes up such repairs as can be made at home, but discourages the undertaking of extensive repairs where crude workmanship may ruin the tire. The actual experience of the Miller tire department has been drawn upon for the information contained in the publication. Illustrations are included, a series of practical hints and suggestions concerning tire trouble, and a comprehensive discussion of rims and the application of tires on different types of rims.

* * *

"INDUSTRIAL ATHLETICS," IS THE NAME OF THE EIGHT-PAGE monthly now being issued by the recently formed American Industrial Athletic Association, mentioned in our issue of September 1, 1918. An account of the first athletic meet, with illustrations, is given, as well as articles on the value of athletics, women in war work, how sports help industrial production, etc. The organization is strictly limited in its membership to amateur performers. Extracts from the constitution and a membership application blank complete the first number of the publication. Its address is Box 277, Goodrich Station, Akron, Ohio.

* * *

"REGULATIONS GOVERNING THE PRODUCTION OF RUBBER Products," Issue No. 1, October 1, 1918, that were superseded by Issue No. 2, November 1, 1918, have both been issued in pamphlet form by The War Service Committee of the Rubber Industry and were published in full in THE INDIA RUBBER WORLD, November 1, 1918.

* * *

"THE GRACE LOG" IS THE TITLE OF THE HOUSE-ORGAN OF W. R. Grace & Co., Hanover Square, New York City, bankers, importers of crude rubber, and other products. The publication is printed monthly on first-class stock, in pamphlet form, seven by ten inches, with paper covers, and contains 48 pages in English and Spanish. The first number was issued in April and contained

pictures of the 194 employes of the company who had at that time entered government service. Later issues have contained portraits of officers of the company and the new line of steamers operating in combined passenger and freight service to ports on the west coast of South America, the first to run to those ports under the Stars and Stripes.

* * *

THE ALTENBURG TIRE EQUIPMENT CO., DAVENPORT, IOWA, HAS issued an attractive 40-page illustrated catalog of tire repair equipment for all requirements. The Altenburg process of retreading is featured with detailed description and numerous illustrations.

THE OBITUARY RECORD.

SUCCESSFUL AND RESPECTED RUBBER RECLAIMER.

ABRAHAM MARCUS, treasurer and general manager of the Somerset Rubber Reclaiming Works, East Millstone, New Jersey, passed away on November 1, 1918. He was born in Dorpat, Russia, September 30, 1883, the son of the late Samuel and Sarah Marcus, with whom he came to this country in 1896.

ABRAHAM MARCUS.

He worked in a shirt factory and at the expiration of four years had saved enough money to go into the junk business at Perth Amboy, New Jersey, where he remained for seven years, finally going to New Brunswick, New Jersey, where he became a partner in the New Brunswick Iron & Metal Co., which business he was interested in at the time of his death.

In 1910 he founded a corporation under the name of Somerset Rubber Reclaiming Works, with a factory at East Millstone, New Jersey, of which corporation he was treasurer and general manager from the time of its origin until his demise. Under his management this concern has become one of the most progressive of its kind in the United States.

During his régime there were never any labor troubles in the factory, as all the employes were contented with their lot, since they found in their general manager a man to work for who understood their position, wishes and desires. It was this human element in Mr. Marcus that made him respected by all with whom he came in contact.

As a philanthropist he had not an equal for a man of his means, and the many unmentioned deeds of charity performed by him are a touching testimonial to his exceptional kindness. There is hardly an organization or institution of a charitable or semi-charitable character that did not count him among its most generous patrons.

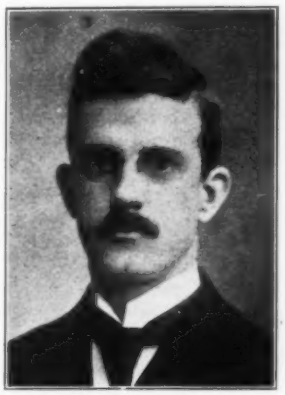
He was president of the New Brunswick Lodge, I. O. B. A.; chairman of the Religious Committee and president of the Sons and Daughters of Zion; a former vice-president of the Congregation of Ahavas; trustee of the Congregation of Anshe Emes; national director of the Rabbinical College of New York; former vice-chancellor of the Knights of Pythias; member of New Brunswick Lodge, B. P. O. E.; life member of the American Red Cross Society; member of the United States Chamber of Commerce, and a member of The Rubber Association of America, Inc.

He was ever preeminently identified with every war relief movement, and his mite was always cheerfully and ungrudgingly given whenever he was called upon.

Mr. Marcus was known throughout the rubber industry of the United States and Canada, and the trade has lost a successful and respected member.

MAKER OF RUBBER SUBSTITUTES AND CHEMICALS.

George F. Lufbery, Jr., the well-known manufacturer of rubber substitutes and chemicals for the rubber trade, died at his home in Elizabeth, New Jersey, last month, aged 43 years.



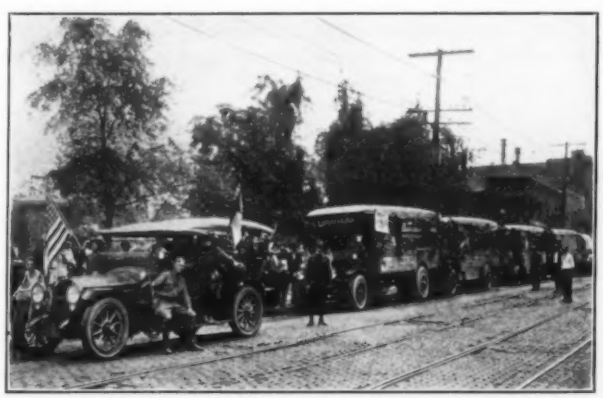
GEORGE F. LUFBERY, JR.

Though born in France, Mr. Lufbery was of American parentage, and his father, the late George F. Lufbery, was a pioneer in the manufacture of rubber substitutes, the firm being known as Lufbery & Chardonnier, with factories at Chauny, France. When a youth the son spent a winter at a Florida resort, and while there decided to complete his education in the native land of his parents, entering and later graduating from the Indiana Normal College at Valparaiso. Entering business, he developed a good trade in the products of his father's factory in France, which establishment, however, was totally destroyed during the German invasion. Nothing daunted, he equipped a factory at Elizabeth, New Jersey, and continued the manufacture of rubber substitutes and chemicals for the rubber trade.

Mr. Lufbery was intensely loyal and active in the various war relief campaigns. He was also a member of the local State Militia Reserve. Indeed, it was the performance of his duties as such that cost him his life. At the time of the disastrous South Amboy munition plant explosion he reported for duty at the armory and there contracted a cold that resulted in pneumonia.

Mr. Lufbery was treasurer of the Society for the Study and Prevention of Tuberculosis; a member of the Young Men's Christian Association; a trustee of the Park Methodist-Episcopal Church, and president of the Forum connected with that congregation. The Chamber of Commerce of Elizabeth, New Jersey, adopted resolutions expressing regret at the loss of so valued a citizen.

He is survived by his widow; also by a brother and sister residing in Paris, France, and a step-mother living in Lawrenceville, New Jersey. He was also a first cousin of the late Major Raoul Gervais Lufbery, the American ace, whose death in the French aviation service was recorded in THE INDA RUBBER WORLD of June 1, 1918.



SUMMER TOUR OF THE AKRON BOY SCOUTS.

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

(675.) An inquiry has been received for the names of concerns manufacturing machines for fastening metal buttons on raincoats.

(676.) A subscriber desires the addresses of manufacturers of machinery for cutting rubber bands from old inner tubes.

(677.) A subscriber requests the addresses of manufacturers of gasket-cutting machines.

(678.) A request is made for the address of concerns dealing in burrs or bushings for tank balls.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or cooperative offices. Request for each should be on a separate sheet, and state number.

(27,613.) A company of importers in Japan wishes to be placed in communication with American exporters of raw rubber.

(27,618.) A company in South Africa would like to secure an agency for the sale of motor car and cycle accessories.

(27,620.) A firm in France wishes to secure an agency for the sale of rubber goods. Cash will be paid. Correspondence should be in French.

(27,622.) A firm in Cuba desires to buy large quantities of automobile accessories and to act as Cuban representative for the manufacturers.

(27,625.) A member of a firm in South Africa, who is at present in the United States, desires to secure an agency on a commission basis for automobile tires and accessories.

(27,631.) A man from Guatemala, who is in the United States for a short time, desires to secure representations for automobile accessories. Cash will be paid. Correspondence may be in English.

(27,634.) A Belgian firm in India wishes to secure an agency for the sale of motor-car and cycle accessories. Payment will be made through local bank.

(27,636.) An agency is desired by a man in France for the sale of motor-car supplies. Correspondence should be in French.

(27,640.) An agency is desired by a man in France for the sale of motor-car accessories. Correspondence should be in French.

(27,665.) A firm in Spain desires to secure an agency for the sale of artificial soles. Payment will be made ninety days after receipt of goods. Correspondence may be in English.

(27,683.) A company in Chile wishes to represent American manufacturers and exporters of carriage, wagon and automobile supplies and specialties. Willing to pay cash with order, to open letter of credit, to place order through New York export house, or to pay drafts drawn on them in Chile through local banks.

ADJUDICATED PATENTS.

(U. S. C. C. A. Ill.) The Sheaffer patent, No. 1,118,240, for improvements in attachments for fountain-pens, consisting of a spring-means arrangement within the casing to lift the presser-bar in a fountain-pen, independent of the compressible reservoir, and firmly holding lever in open or closed position, Held valid, showing invention, and claims 1 and 2 to have been infringed. Barrett *v.* Sheaffer, 251 Federal Reporter, 74.

(U. S. C. C. A. Ill.) The Gill patent, No. 1,188,370, for improvements in elastic packing-rings, and Patent No. 1,210,371, for improvements in processes of making packing-rings, Held valid and infringed. Blettner *v.* Gill, 251 Federal Reporter, 81.

REBUILT TIRES AND CONSERVATION.

THE extravagance and wastefulness of the American public have been recounted so often of late that further comment on the subject can be of little interest unless it refers to unusually flagrant cases. And there is such a case that is of interest to the rubber industry. This has reference to the extravagance shown by a great number of automobilists in prematurely discarding their auto tires.

The number of tires that have been discarded and which should have been utilized still further after proper repairing, is really enormous. The automobilist who would certainly have a torn suit repaired and continue wearing it is usually utterly indifferent to a similar condition in his automobile tire; and it so happens that the average tire costs the same as the average suit of clothes.

There are various causes for this wastefulness; for instance, ignorance, carelessness or indifference. Also, until recently, the means for properly repairing automobile tires were not within the reach of a great number of automobilists, especially in the rural districts.

The net result of the situation outlined above is that there is to-day among the discorded automobile tires in the hands of the scrap dealers a very appreciable percentage of tires which, with proper manipulation, can give a great deal of additional service. And this rehabilitation can be done at a cost which figures out at a lower cost per mile, on the mileage still obtainable, than the cost per mile on new tires.

The retreading or rebuilding of prematurely discarded auto tires is a most fertile field for the opportunist. The various elements to be conserved are, especially at this time, exceedingly important. The importance of the three great elements speak for themselves—fabric, crude rubber and labor.

It is especially interesting to note that the conservation of these damaged, but not worn out tires is in striking contrast to the normal utilization of scrap tires. Normally these are reclaimed, and although certain important results are obtained from this process, nevertheless it is almost entirely a destructive process. It destroys practically all of the important elements which are conserved by the constructive or rebuilding process.

Retreading or rebuilding scrap auto tires has been practiced for some years. Its scope, however, has been greatly limited for various reasons, one of which is that the business has not been conducted on a scale which could conserve the great number of tires that should be conserved.

The discarded tires and the few raw materials needed being available, it is up to the manufacturer to make and market on a large scale an honest rebuilt tire.

INTERESTING LETTERS FROM OUR READERS.

MORE ABOUT THE AMERICAN RUBBER TRADE.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

DEAR SIR:—The leading editorial in your October issue has just reached me. Be assured that the rubber trade in this country will be in hearty accord with what you say regarding the perfectly unjustifiable insinuations appearing in certain of the British financial papers. I am confident that all those of us who have any knowledge of the trade with America speak in the highest terms of the fairness of our friends on your side.

The remarks you quote from "Truth" were exceedingly offensive. Needless to say, they were equally misleading as to facts, and in spite of the letter I addressed to the Editor, a copy of which I sent you in my letter of September 3, I was unable to obtain anything more than a half-hearted withdrawal.

I thank you heartily for your editorial, and can assure you without hesitation that it is entirely in accord with the feelings and beliefs of the rubber trade here who have looked upon these offensive insinuations with the contempt they deserve.

Yours faithfully,

E. STEVENSON.

London, England.

THE RUBBER TRADE IN AKRON.

By a Special Correspondent.

IN November, The B. F. Goodrich Co., Akron, Ohio, made the following announcement:

During the past year the many unusual demands, due largely to war conditions, including the patriotic subscriptions to Liberty Loans and War Savings Stamps and the generous contributions to the various war activity funds, have created a situation which this company has already recognized in its payment of wages to its employes on the factory payroll and which it feels equally bound to recognize in its payment for services to salaried employes.

Each salaried employe will, therefore, receive on December 1, 1918, additional compensation for services rendered and to be rendered, equal to 25 per cent of the total salary paid to each such employe during the year 1918.

Since the beginning of the war, Goodrich employes have "stuck on the job" as well as contributed 3,800 men to the colors. The action of the company in voluntarily giving the bonus announced means the distribution of at least $2,000,000, and it applies not only to salaried employes in the Akron factory, but also to those in the field force.

Many employes are planning to use the bonus to pay up the balance due on their Liberty Bonds, some are going to put it in the bank, some are going to purchase Goodrich stock; but all are going to do something worth while with it, without question.

* * *

The B. F. Goodrich Co., Akron, has made the following appointments: C. H. Wheeler, formerly chief supervisor of production, in charge of all pneumatic tire production; I. R. Renner, formerly chief supervisor of construction, in charge of pneumatic tire construction and quality; J. T. Johnson, Jr., manager of experimental tire department.

Misses Ruth and Mary Sterley, two of the Goodrich nurses whose pictures appeared in THE INDIA RUBBER WORLD November 1, 1918, are now in France.

Miss Mary Stevenson, another Goodrich nurse, is planning to enter Red Cross service.

New training quarters for athletes of The B. F. Goodrich Co., Akron, were opened late in October, adjoining the rooms occupied by the Goodrich fire department. Athletic equipment of all kinds has been installed. The rooms are open to all Goodrich men who secure a permit from Director Connelly for the use of them.

* * *

The Mason Tire & Rubber Co., Kent, has been making large shipments of rubberized raincoats to the Government on contracts placed about two months ago. Five weeks after the contract was signed, the company had taken over a large unused plant, equipped it completely, and commenced deliveries at the rate of 2,000 coats per week. This number has since been increased. The raincoat plant will be maintained regardless of war work.

* * *

The Swinehart Tire & Rubber Co., Akron, is adding to its plant a two-story, reinforced-concrete brick-front building, 50 by 167 feet, to be used for vulcanizing and storage purposes.

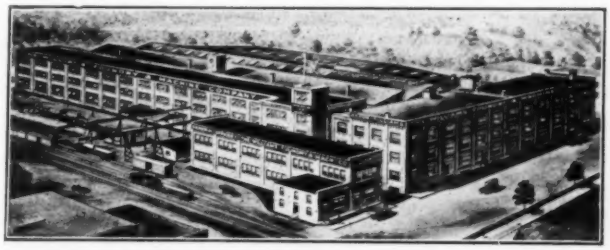
* * *

The Electric Rubber Reclaiming Co., Barberton, is now manufacturing rubber heels and fiber soles, rubber stair-treads, door mats and matting, and sheet packing, besides its regular line of products.

* * *

The Columbiana Tire & Rubber Co., Columbiana, has increased its capitalization from $300,000 to $800,000 comprising $500,000 common stock and $300,000 preferred.

The Williams Foundry & Machine Co., Akron, manufacturer of tire-building and repair equipment, including all kinds of the necessary tools, presses, and vulcanizers, has just completed its new office building, besides other recent additions to its plant.



PLANT OF WILLIAMS FOUNDRY & MACHINE CO.

The company was reorganized a year ago and since that time has greatly increased its manufacturing space, facilities, and volume of business. It completely equips tire-building factories as well as making the requisite tools and machinery.

* * *

John C. Reich has been appointed to fill the position formerly occupied by Robert E. Lee, now in government service, as superintendent of labor for the Firestone Tire & Rubber Co., Firestone Park, Akron. Mr. Reich comes from the Western Electric Co., Chicago, Illinois, where he gave considerable study to industrial development, health insurance, labor conditions, and kindred subjects. His training has particularly fitted him for his present position.

* * *

Miss Laura Sweeney, of the factory hospital of The Goodyear Tire & Rubber Co., is the first Goodyear nurse to be assigned to an overseas unit of the United States Army Medical Corps. She recently left Akron for New York City, to prepare for her trip to the war zone.

Miss Gladys Halford, another Goodyear nurse, recently left for California, there to await the sailing of the Red Cross vessel on which she expects to go to Siberia.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

THE abrupt cessation of hostilities abroad and the probable ending of the war have brought about some marked changes in rubber manufacturing establishments where war materials were being made. As a rule the Government has shown a disposition to be quite fair in regard to contracts, and while expressing a desire that the manufacturers should accept cancellations, is endeavoring to have them do so without detriment to the industries, or any loss on material in process of manufacture. The production of such articles as gas-masks, however, the need of which, it is hoped, will nevermore be realized, has been abruptly stopped, and in them rubber tubing and elastic web were used, so the cancellation affects factories making those parts. The clothing makers are curtailing production, and possibly have ceased cutting new fabrics, though finishing all garments which were in progress. The tire manufacturers are allowed an increased production for civilian use. The footwear manufacturers are enabled to furnish boots for their regular trade, an accomplishment not possible while the Government demanded their full boot output for the soldiers.

* * *

When A. M. Paul purchased the business of the Davidson Rubber Co. several years ago, the catalog of its products made a goodly volume, so great was the number and variety of the goods manufactured. To-day a little 24-page pamphlet, small enough to go in an ordinary-size letter envelope, is sufficient to picture, describe and price the lines of goods now produced. Concentration and specialization take the place of unlimited

variety, and with the manufacture of a small number of items commanding a large sale, the business has been so systematized that the income has shown a remarkably large increase, though the assortment is reduced to 20 per cent of the previous output. As an example of the concentration it may be mentioned that where formerly more than forty varieties of water bottles and fountain syringes were listed, now only two styles of each are made, only two styles of bulb syringes, and two kinds of nipples, of one color only. The same simplification applies to tobacco pouches, ice caps, etc., and the house has discontinued special markings and individual labels for jobbing or retail customers. The business dates back to 1857, and the present structure, (or part of it), was built 50 years ago, yet when one goes through the factory he finds all the machinery and equipment of the latest, another point which makes for efficiency, and this, having its influence on the quality of the output, is an added cause for an increase, within a comparatively short time, of over 50 per cent in the annual business done by this company.

* * *

It will be remembered that C. J. Bailey, the proprietor of the longest established rubber store in this city, died last April. The business has recently been incorporated as the C. J. Bailey Co., with a capital of $50,000. The officers are H. E. Bailey, president; Leah Bailey, clerk, and M. S. Lawrence, treasurer and general manager. The two first are the son and daughter of the late Mr. Bailey. Mr. Lawrence has been associated with Mr. Bailey's business for more than two score years, having started with him in the dry goods business in Lynn, occupying an important position when Mr. Bailey established the lace business in Boston, and was for two years a lace buyer. When Mr. Bailey's rubber brushes and tires gained prominence, Mr. Lawrence opened a branch house in Montreal, Quebec, and later, for two years managed the London, England, and Paris, France, houses of the concern, with residence in the former city. Of late years he has been Mr. Bailey's right-hand man in the Boston store, and the decision of the heirs to place him in charge of the business is a wise and proper one.

M. S. LAWRENCE.

* * *

The Clark Rubber Manufacturing Co. reports a constantly increasing business in its specialty of rubber heels, and while, in the last few months it has been difficult to fill all the orders coming in, the prospect is for a better source of labor supply, which will enable the company to keep up with the demands of the trade.

* * *

The "Hood Arrow" is a neat, newsy publication issued semi-monthly by the service department of the Hood Rubber Co., Watertown, and sold to the employes at one cent per copy. The November 15th issue contains a list of all the employes of that company who have entered the Army or Navy, with each individual's latest address, thus giving their fellow workers the opportunity to send Christmas greetings. It is a long list, nearly nine pages, though the last page gives only the names and departments of those who had not sent their addresses. An interesting war-time item, headed "How War Changes Destinies," reads as follows:

A stranger in the person of Arved Alex secured employment here several months ago. He was assigned to the Tube Room, Tire Bldg. Arved was a bright blond man of 28, educated for 10 years in the best colleges in Europe. He spoke five languages and had a large account in a Somerville bank. Recently Arved caught the "flu," pneumonia developed and he died. His uncle came here to see Mr. Dwyer and explained why the young man was working here. "Arved," he said, "was superintendent of a rubber concern as large if not larger than the Hood; but when Germany tried to induct him into Service he fled the country by way of Siberia, whence he came to America."

* * *

The Boston Rubber Shoe Co. has been making over 4,000 pairs of hip rubber boots a day for the United States Government, and because of this has been unable to fill civilian orders for its regular trade. In this respect it is in the same position as all other rubber footwear manufacturers. On account of the armistice and its expected culmination in restoring peace in Europe, it is more than probable that present boot orders will be cancelled, and thus the boot makers will be available for filling the civilian demand.

* * *

The L. J. Mutty Co. has increased its trade in automobile top fabrics and upholstery fabric remarkably in the last few years. It is furnishing large amounts of its top fabric to the Government to equip its tractors. The foreign business of the concern has increased 1,000 per cent since the war started, and extends not only to Europe, but to South America, the Philippines, Malaysia and Australia. This in part is caused by the government regulations that only one in four automobiles exported may be furnished with a top. This resulted in a big demand abroad for top fabrics, which demand this house has specially catered to, with the result that the "Dridek" trademark of the company's goods is becoming well-known in foreign countries.

* * *

Fred T. Ryder, of the Rinex Sole Division of the United States Rubber Co., has been covering some of his territory by automobile. Last month he had some strenuous experiences with muddy roads. Once he was stalled for several hours on a short stretch of unpaved highway on the State road between Brunswick and Gardiner, Maine. Yet even at that, he can hardly appreciate the mud about which his son writes in describing his experiences in the 26th Division "over there."

* * *

The new mill about to be erected by Everlastik, Inc., in Chelsea, was intended primarily for the manufacture of non-elastic webbing for war purposes. However, with the conclusion of the war it is believed that the demand for the goods of this enterprising concern will be so increased that the new mill will be fully occupied on its completion.

* * *

The newly organized Citizens National Bank of Boston, which will open for business early this month, has a strong directorate including several prominent business men. The rubber business is represented by Captain Francis H. Appleton, of F. H. Appleton & Son, Inc., and Abraham Sydeman, of the Plymouth Rubber Co.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

ALL manufacturing establishments throughout Rhode Island were closed on "Liberty Day," Monday, November 11, in celebration of the surrender of Germany and the signing of the armistice. As soon as the whistles and bells sounded the prearranged code about 3 o'clock in the morning, houses were ablaze with lights, thousands of persons swarmed to the streets, parading, cheering, singing and waving flags.

At Bristol the operatives from the National India Rubber Co. and the Narragansett Rubber Co. made a solid phalanx of more than 3,500 in the parade and in Woonsocket the employes of the Alice Mill joined in the demonstration. In

Providence thousands of men, women and girls from the Revere Rubber Co., the Davol Rubber Co., Bourn Rubber Co., Glendale Elastic Fabric Co., Mechanical Fabric Co. and the Valley street plant of the United States Rubber Co. swelled the ranks of the paraders.

* * *

Following the announcement of the signing of the armistice there was a general cessation of overtime activities in the rubber manufacturing establishments of the State, and while the management of the various plants refused to discuss the situation, it was generally understood that a halt had been called on all government goods and contracts, at least temporarily. It was stated, however, that, irrespective of future employment on these contracts, the regular lines were so far behind normal conditions of the market that there was sufficient work on hand or in sight to keep the mills running to capacity for many months to come.

At the Davol Rubber Co. the manufacture of gas masks was discontinued November 13, but of the 45 men and women that were employed on this work, less than half a dozen were laid off. All of the women were given work in other departments of the plant. When the manufacture of the masks was started, very few new employes were taken on, most of those assigned to this work being withdrawn from other departments. The Revere Rubber Co. was also engaged in making gas-masks.

* * *

Colonel Samuel P. Colt, of the United States Rubber Co., is a member and president of the Rhode Island Limit Men, an association composed of firms and individuals of this State who have purchased $1,000 worth (maturity value) of War Savings Stamps, and he is making a special effort to secure the enrollment of at least 2,000 members before the close of the year. Already there is a total membership of more than 1,400. Among the members are the Bourn Rubber Co., Mechanical Fabric Co., Davol Rubber Co., and the Revere Rubber Co., all of this city; National India Rubber Co. and Narragansett Rubber Co., of Bristol, and Woonsocket Rubber Co., of Woonsocket.

* * *

To the United War Work Fund the Woonsocket Rubber Co. contributed $10,000, credit for $6,000 of which was given to the Alice Mill, at Woonsocket, while the other $4,000 goes to Massachusetts, where the other plants of the concern are located. The Glendale Elastic Fabric Co. donated $2,000 to the fund, of which $1,500 was credited to Massachusetts and $500 to this State.

* * *

The developments that have followed the taking over of the site of the old Alco Co.'s plant on Valley street by the United States Rubber Co., and combining with the adjoining plant of the Revere Rubber Co., have been rapid and extensive. The combined properties now operated under the direction of the Revere Co. have a total area of 909,687 square feet, of which 444,854 square feet are included in the newly acquired Alco site. Additional machinery and facilities are being introduced. In the old Alco plant, foundations for forty new vulcanizers of large size are being laid and a number of large-size mixing machines installed. A large oil tank will be erected at the old Revere plant, as fuel oil will be used more extensively in the operations of these factories.

* * *

The Ninigret Mills Co. is the style of a new corporation chartered last month under the laws of Rhode Island with a capital stock of $50,000. The incorporators are Frederick E. Fowler, Charles Perry and Charles S. Fowler, all of Westerly. The new concern will manufacture fabric for auto tires and will conduct business at the Arnold Mill, in Canal street, Westerly.

Among the extensive improvements and alterations that have recently been under way at the plant of the Bourn Rubber Co., Warren street, Providence, was the changing of the walls and foundations of the boiler house preparatory to enlarging the boiler equipment. Plans have just been completed for a storage building to be erected on Warren street. It is to be of brick, of mill construction, one story high, 60 by 90 feet, with concrete flooring and gravel roof.

* * *

At the National India Rubber Co.'s plant at Bristol alterations, extensions and improvements continue. During the past month extra heavy foundations have been put in at the large new storage building which was erected about a year ago.

* * *

John H. Mott, for 34 years foreman of the packing department of the National India Rubber Co., Bristol, died on November 17, in his 69th year. He was born in Bristol and made the first rubber shoes at the Byfield Rubber Co., Bristol, now the Narragansett Rubber Co., when that plant commenced operations.

* * *

John Anderson, foreman of the shipping department of the insulated wire division of the National India Rubber Co., Bristol, died on October 28, of double pneumonia. He was 32 years of age and a native of Scotland. He had been in the employ of the National company for a number of years.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

THE rubber industries of Trenton, through both employes and company officials, contributed liberally to the United War Work Fund. All the Trenton plants were placed on the 100 per cent list. The Acme, Hamilton, Home, United & Globe, Thermoid, Whitehead Brothers, Joseph Stokes, Ajax, Empire, Delion, Essex and the Joseph Stokes Rubber companies each contributed $1,000. George R. Cook, president of the Acme Rubber Manufacturing Co., gave $1,500; Charles E. Stokes, vice-president of the Home Rubber Co., $500; Louis P. Destribats, manager of the Ajax Rubber Co., Inc., $200; while General C. Edward Murray, former head of the Empire Rubber & Tire Co., gave $800. Charles E. Stokes, of the Home Rubber Co., was chairman of the industrial section of the last war drive. Speakers visited all the rubber concerns and concerts were given at each plant to arouse interest in the drive.

* * *

All the Trenton rubber manufacturers were well represented in the peace celebration parade and the majority of them had floats in the line of march. The Essex Rubber Co. had the largest turnout and the girl employes marched in blue bloomers and blue waists. The United & Globe Cos. blew their big factory whistle from 3:30 o'clock in the morning until late in the afternoon.

* * *

The Trenton rubber concerns are now well supplied with coal for the coming winter. John S. Broughton, the Mercer County fuel administrator, recently secured permission from the Government to allow the rubber concerns not only to secure a good supply for the winter months but also to store coal for future use.

* * *

The Thermoid Rubber Co., Trenton, has nearly completed a two-story steel and brick semi-fireproof building which is intended to take care of increased business in several departments and provide increased storage space. The new structure is a continuation of the building erected several years ago and will give the company, when completed, a two-story factory approximately 280 feet in length and 70 feet wide.

The Crescent Insulated Wire & Cable Co., Inc., Trenton, was recently one of several wire companies awarded a contract by the Government for Signal Corps wire for use overseas.

* * *

Here are pictured two popular rubber men of Trenton who are so well-known in the trade that to name them would seem almost unnecessary. They were evidently enjoying a holiday at some popular resort, judging by their happy expression, particularly that of the British officer, who is doubtless thinking of the enthusiasm his address created at a recent war-work meeting.

E. B. FULPER AND CAPTAIN BUCKLETON

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George T. Oakley, son of Clifford H. Oakley, president of the Essex Rubber Co., attached to the United States naval aviation detachment at Pensacola, Florida, recently had a narrow escape from death when, in company with fellow aviators, he was forced to make a landing at sea. He was rescued by an outgoing vessel and taken to a Cuban port. Young Oakley has been in the aviation service for some time.

* * *

Milton Cohn, private secretary to John S. Broughton, president of the United & Globe Rubber Manufacturing Cos., and now connected with a base hospital supply in France, was surprised, while driving an ambulance across a battlefield, to pick up a piece of fire hose made by the Globe company. On the hose were the words, "United & Globe Fire Hose, manufactured by the United & Globe Rubber Manufacturing Companies, Trenton, N. J." The United & Globe ship their products to many foreign countries. Cohn is 23 years old and formerly lived in Brooklyn, New York. Several years ago he was given a position in the United & Globe's New York office. Because of his efficient work he was transferred to the main office at Trenton and made private secretary to President Broughton. He has been in France nearly a year.

UNITED & GLOBE FIRE HOSE FOUND ON A FRENCH BATTLEFIELD.

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A recent fire badly damaged the drying room at the United & Globe plant. The blaze started from an overheated pipe.

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The Delion Tire & Rubber Co. contemplates the erection of additions and alterations costing $75,000.

The Truck Tire Sales & Service Co. has been incorporated with $50,000 capital and has opened headquarters at 42 Barnes street, Trenton. John M. Goodridge, Edith Goodridge and Thomas N. Balderston are the incorporators. Mr. Balderston has made a study of the manufacture of solid tires and has been at the Philadelphia headquarters of the United States Tire Co. for some time familiarizing himself with the details of the business. The company is now instaling a new ten-ton hydraulic press, and will handle only United States solid and truck tires.

* * *

The Semple Rubber Co., Trenton, has leased for a term of years the large three-story factory building of the Japanese Silk Garment Co., situated on Lamberton street. The building will be used by the Semple company in connection with its factory on Murray street for the manufacture of automobile tubes. The company has outgrown the Murray street plant.

* * *

Charles H. Cook, treasurer of the Hamilton Rubber Manufacturing Co., sustained lacerations and contusions of the head when an automobile in which he was riding recently crashed into a pole near his home on West State street. The machine was driven by his daughter.

RUBBER-SET AND RUBBER CUSHION BRUSHES.

In the manufacture of rubber-set brushes the tufts are partly secured by the application of unvulcanized rubber before being placed in the bands or ferrules, and owing to the hardness of rubber after vulcanization, it is necessary to drill holes in that portion of the brush in the band or ferrule before the brush can be nailed. The process in making rubber cushion brushes is to rout and undercut the blocks. The bristles are sifted by an agitator through the holes of a piece of rubber somewhat larger than the recess of a block. The ends of the bristles protruding through the rubber are ironed down, and liquid rubber is placed over the ironed ends and vulcanized. The rubber containing the tufts is inserted in the back of the brush, in the end of which a hole is bored to allow the passage of air under the rubber to give the cushion effect. Hair brushes are made by this process both in the United States and in England.

Brushes have always been specifically provided for in the tariff acts at ad valorem rates of duty varying from 7½ per cent in the acts of 1789 and 1790 to 40 per cent ad valorum in most of the acts of the last half century. The rate in the Act of 1913, now in force, is 35 per cent. The provision applies alike to toilet and paint brushes. ("The Brush Industry." Tariff Information Series, No. 8. United States Tariff Commission, Washington, D. C.)

REAPPRAISEMENTS.

RAINCOATS.—The foreign market value of raincoats, imported from the Associated British Clothing Manufacturers of Leeds, England, is advanced in a reappraisement decision handed down on November 19 by Judge Howell, of the Board of General Appraisers. The raincoats in question, exported from England on July 1, 1913, and entered at this port on August 1, 1918, were valued by the importers on the invoice of 41*s.* each. The official decision of the general appraiser, fixing the value at 43s. each, reads as follows:

Double breasted raincoats cotton, C. 1023, entered at 41*s.*; reappraised at 43*s.* each.

RUBBER BOOTS TO BE PLENTIFUL SOON.

Relief from the acute shortage of rubber boots for civilian use in this country is forecast by the action of the Government in asking that all manufacturers of rubber boots and shoes consider the cancellation of present contracts for rubber boots which expire December 31.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

AT the time of writing, the constitution of the committee which is to advise the Ministry of Munitions as to what steps if any are advisable with regard to the government control of rubber, has not been made public, but it is understood that the Rubber Manufacturers' Association will be represented on it. Meanwhile, though there is a good deal of ferment in plantation companies, prices are keeping up well, as there is little disposition on the part of the public to dispose of shares. In the trade the general feeling is that when peace comes the price of rubber and also of shares will go up because so many countries are almost denuded of rubber goods. At the same time the huge war demand will of course fall off, and with the further increase in the output which is to be expected, prices will then fall again. The opinion is expressed that the trade will not be able to absorb all the rubber produced in a few years. A lot of rubber is now being used in place of leather, not because people prefer rubber soles to leather, but because of the scarcity and high price of leather. When leather comes down to more natural prices the rubber sole will go, to a large extent, unless the makers cut their present large profits. At the recent exhibition of footwear and leather substitutes in London, Sir Edward Fenton, chief inspector of boots for the Army Clothing Department, said that during July and August 200,000 pairs of boots had been made in this country with leather substitutes, though such substitutes were not used for army boots. That there is nothing like leather still seems to sway the official mind. The trade generally remains very busy and, unlike some others, it has no apprehension at all as to its immediate future if the peace rumors which are prevalent as I write come to an early maturity, such is the congested state of order books for civilian requirements.

Trade has continued much on what are now normal lines, though a feature has been the demand for waterproofs, owing to the incessant rain of the later part of the summer, a business in which advanced prices have proved no deterrent. In civilian business the sales to men always exceed those to women; now it is the reverse as so many women are engaged in work of one sort or another, and moreover they have more money to spend on themselves. With the present high prices of textiles the waterproof, whether rubber or merely rain-proof, is likely to remain at a high price for some time.

DETERMINATION OF THE STATE OF CURE.

In a recent paper entitled "Comparative Methods for Determining the State of Cure of Rubber," embodying work done for the Rubber Growers' Association and communicated to the "Journal of the Society of Chemical Industry" for August 31, 1918, Dr. H. P. Stevens raises an important point with regard to the testing of rubber samples. Specifications usually state that the rubber goods must stand certain physical as well as chemical tests in order to show the state of vulcanization, and Stevens shows that whereas the chemical test for combined sulphur is independent of the age of the sample, the physical tests, particularly the load supported per unit of cross-sectional area at a given elongation and *vice versa*, depend upon the age and external condition of the rubber. Comparable results are obtainable, therefore, only when the samples are tested at a fixed period subsequent to vulcanization. Further, the temperature to which the samples have been exposed also affect the results, as Stevens proved by testing at both summer and winter temperatures. In the specifications with which I am familiar there is no reference to the above causes of discrepancy and nothing definite is known as to the age of the samples being tested. It is not uncommon for a sample to be submitted a day or two after manufacture, and if this is approved of, the manufacture of the bulk quantity is then proceeded with. It may take some months to complete the order so that a sample taken on delivery may be as many months old as the original sample was days. Moreover, summer may have given place to winter, or *vice versa*. It certainly seems, then, that Stevens' paper should be taken to heart by those responsible for physical tests made in connection with important contracts. As has been said, the chemical tests are not affected in the same way and Stevens' main objection to these seems to be the time they occupy. Many will agree with him on this point. I remember, when Weber's book was first published, hearing a Teutonic rubber chemist—if I may be allowed to say so—remark that life was too short for Weber's methods. I doubt, however, if Weber mentioned extracting rubber for a week as Stevens does in his painstaking and methodical work.

GOVERNMENT SUPPRESSION OF RUBBER IMPORTS.

On October 11 the trade received notice that a committee of the Ministry of Munitions with Sir Clarendon Hyde as chairman, had been formed to regulate the import and supply of raw rubber to manufacturers. The notice was also sent to reclaimers, as all scrap and waste rubber are included in the regulations. Under the various salvage schemes the authorities have recognized that the scrap rubber business has become quite a big thing and that the reclaimer is now considered a much more important personage than in days of yore.

JOURNALISTS ON THE TRAMP.

It will not be news to American readers to hear that a party of American journalists have been doing Great Britain. More, I believe, are to come, though whether the Editor of THE INDIA RUBBER WORLD will be among them I have no information. British journalists have also been on the tramp, and a special article contributed by one of them to a prominent paper in the North of England contains references to Pirelli's works which are of more than passing interest. After saying that Italy has not drawn much upon women for industrial war work, the writer remarks that Pirelli's great rubber works have always had many women but even to-day the proportion to men is not much higher. The women work nine hours on an average and get from 7 to 9 lire ($1.35 to $1.74) a day. In only one room were women seen in men's clothes, and this had always been the case. Further on the writer says: "At Pirelli's rubber factories we beheld in their stately chapel-like laboratories the production of an electric spark at a tension of 600,000 volts—a high act of modern scientific ritual that cannot be performed anywhere else in the world. It appears that they can actually go up to 800,000 volts."

GUAYULE.

The illustrated article on the guayule industry in the issue of THE INDIA RUBBER WORLD for July 1, 1918, was very interesting. No doubt many besides myself were surprised by the scientific developments which have taken place. Those who introduced guayule rubber to the English manufacturer found that their path was not all roses, as a good deal of prejudice existed. I remember the extensive exhibit at the Second London Rubber Exhibition, under the egis of H. van der Linde. This attracted a good deal of attention because of the rubber-manufacturing machinery installed. The sample of guayule which I took away with me seems to be in much the same condition

to-day as at first; it is certainly not oxidized like certain other brands of extracted rubbers on offer at that date. The guayule sample was well-rubbed with sulphur on account of its tackiness, the resin content being about twelve per cent. I do not know whether sulphur is going to be generally used, but it has obvious disadvantages. Perhaps the tackiness will be removed in the future so as to render any such addition unnecessary.

I asked a rubber manufacturer the other day as to his opinion of guayule. He said it was a long time since he had heard the name, but when it was introduced to the English trade he made numerous trials with it. The results, he said, were carefully recorded in note-books which could be referred to if occasion arose. What had been particularly against it was the variation in the quality lost in washing. He had bought it, he said, at prices varying from 36 to 84 cents per pound and there was an impression in the trade that the sellers were getting what they could in an endeavor to induce the manufacturers to arrive at its real, relative commercial value.

PERSONAL AND TRADE NOTES.

At Dublin, on September 17, Dr. Dunlop, the inventor of the pneumatic tire, was summoned for using a motor car contrary to the regulations. The doctor, who is 79 years of age, pleaded necessity and was fined the mitigated penalty of $2.40, the magistrate characterizing him as a public benefactor.

Dr. E. M. Muspratt, owing to advancing age, has resigned the chairmanship of British Insulated and Helsby Cable Co., Limited, and is succeeded in that position by James Taylor. Dr. Muspratt will still retain a seat on the board, to which Alexander Roger, of London, has been added. Dr. Muspratt was primarily a chemical manufacturer, and a director of the United Alkali Co., of which concern his son, Max Muspratt, is now chairman, while James Taylor has been head of the Helsby Cable Works for many years.

R. T. Byrne, who presided at the annual meeting of the England & Birmingham Rubber Co., in September, announces that the company has now acquired all of the shares of the Mitcham Rubber Co., near London, and that in order to finance its various extensions it has decided to issue the balance of £50,000 preferance shares, only £18,500 having so far been issued.

E. Mather, who has been for the last two or three years president of the Amalgamated Society of India Rubber Cable and Asbestos Workers, has resigned this position on appointment as manager of Messrs. Mandleberg's new proofing works, Manchester.

With regard to my recent reference to the changes at the Revolite Co.'s works, Manchester, I may add that Mr. Reed has now given up the management which he assumed temporarily, the post now being held by Mr. Crozier, managing director.

Lord Colwyn, chairman of Charles Macintosh & Co., Limited, is one of a committee of three peers appointed to inquire into the formation and financial arrangements of the British Cellulose and Chemical Manufacturing Co. Severe strictures have been made in responsible quarters about this large new concern, which was primarily established about three years ago for the manufacture of airplane dope from cellulose acetate, a body which has been made for some years by the Dreyfus process.

HOT-WATER BOTTLES FOR MUFF HAND-WARMERS IN CHINA.

The deluge of orders from China for rubber hot-water bottles has at last been explained. All China is not suffering from indigestion nor an epidemic of Spanish influenza, but it seems that instead of carrying the old-fashioned charcoal hand-warmers in their muffs, the Chinese girls are using rubber hot-water bottles and this custom has become a style or fad. Hot-water bottles are the more popular in that thus used in a muff held close to the person they impart considerable heat to the body while warming the hands.

MISCELLANEOUS FOREIGN NOTES.

TRAVELERS' TREATY SOON GOES INTO EFFECT.

THE treaty designed to protect the rights and coordinate the activities of commercial travelers in all the countries of the Western Hemisphere, has been ratified by a sufficient number of countries to go into effect. This will be a most important step forward to promote the trade of the United States in Central and South America.

The new treaty will consolidate all the many annoying provincial and local taxes, licenses, and charges placed on commercial travelers into a single, uniform Federal tax. This will enable the trade representative to go anywhere in the country to which he is sent and solicit business in person or by correspondence for the period of one year.

The samples carried by the traveler are privileged to entry at the ports of each country without being subject to duties where they have no commercial value and may be exported within a period of six months, the commercial traveler furnishing a bond for strict compliance with the law.

AMERICAN ELECTRICAL EQUIPMENT FOR SWITZERLAND.

"La Revue de Lausanne" states that the United States has offered to make a loan of 750,000,000 francs to Switzerland in order to electrify the railways. Switzerland thus would become independent of German coal.

RUBBER SHEETING USED IN DISINFECTING WOUNDED GERMANS.

Under the title "Berlin Days," Neville Taylor Gherardi writes interestingly in "The Saturday Evening Post" regarding experiences in both Germany and Austria during the time her husband was naval attaché at Berlin. Her observations in an Austrian hospital disclose one of the many uses of rubber goods in connection with the war, about which little has been written. The narrative reads:

Nowadays in Europe one talks quite naturally about the little animals that walk on the men in the trenches. I saw in the hospital in Vienna how they kept them out. All patients are received in a big iron building, where all their garments are removed and the patients scrubbed with disinfectants, the badly wounded are put on stretched rubber instead of into tubs to disinfect them, then wrapped in sheets and taken into the hospital. The clothes are then passed through a high-temperature room, which kills all life in them, after which they are repaired, cleaned and ready for the man again when he is well. There are buildings large enough to disinfect a whole train at one time after it gets back from the Russian front.

That was before the present shortage of rubber within the Central Empires became acute. Henceforth this humane treatment will in many instances have to be effected by less convenient means, and the ever-increasing shortage of rubber surgical goods can but result in a considerably increased mortality in enemy hospitals.

NIPPLES FOR FEEDING BOTTLES.

As has been stated in a previous issue of THE INDIA RUBBER WORLD, feeding bottle nipples are extremely difficult to obtain in Germany. Reworked rubber is now usually employed in making them and a firm at Munich uses a rubber substitute called Sterilin, which is claimed to be free from smell and stickiness. Apparently the rubber substitute usually produced by the industrious German chemist is not quite the perfect article it claims to be.

TIRES FROM TOADSTOOLS.

The scarcity of cork in Germany led to an investigation of possible substitutes that is reported to have resulted in the invention by Wohlfart and Sachovitz of a process by which toadstools are converted into an elastic substance, suitable for making stoppers for bottles, rings for preserve jars and in making automobile tires, etc.

Rubber Planting Notes.

RUBBER PLANTING IN BRITISH MALAYA.

L. LEWTON-BRAIN, Director of Agriculture, Federated Malay States, publishes a series of statistical tables dealing with the rubber planting industry in the Malay Peninsula. These statistics show that in spite of the crisis through which the industry is passing (in common with most other industries), there was an addition of 93,950 acres to the planted area during the last year, bringing the total up to 1,045,820 acres, of which 621,622 acres are in the Federated Malay States. These figures refer only to estates of 100 acres and over. The statistics for the various portions of British Malaya are as follows:

	1916.	1917.
Federated Malay States	551,959	621,622
Straits Settlements	145,139	153,189
Johore	153,691	162,375
Kelantan and Kedah	98,436	105,484
Trengganu	2,645	3,150
Acres	951,870	1,045,820

The following interesting comparative table is given of estates of over 100 acres in extent:

	1916.	1917.
Number of estates	1,475	1,634
Acreage in possession	1,857,157	1,908,993
Planted in rubber	951,870	1,045,820
Producing	543,556	632,929
Newly planted	118,801	93,950

In addition to the above, an official approximation is made of the planted acreage of holdings of less than 100 acres each in the Federated Malay States. This is given at 271,862 acres, of which 109,535 acres are producing.

The number of laborers employed on the larger estates amounted to 352,552, of whom 228,850 were employed in the Federated Malay States. The labor force is made up as follows:

Tamils	200,451
Chinese	98,393
Malays	29,822
Javanese	19,354
Others	4,532

One of the tables gives the rubber crop for 1917 as 82,319 tons, as compared with 67,677 tons in 1916 and 1,580 tons in 1908.

RUBBER IN THE FRENCH AFRICAN COLONIES.

It is estimated that the average annual production of rubber in the French Colonies of Western Africa amounts to 2,000 tons, while French Equatorial Africa produces some 3,000 tons. There are considerable stocks now available at all shipping points in France's African Colonies.

FRENCH COLONIAL RUBBER.

The Belgian Minister of Colonies has delegated Dr. G. Van Pelt a government official of the Belgian Congo, to work for a while at the Colonial Institute, Marseilles, France. Dr. Van Pelt's labors in the past have been in researches at the rubber laboratory at Delft, Holland, and as technical director of one of the largest plantations in Sumatra. The Marseilles Colonial Institute proposes to study, with the doctor's help, the measures that can be taken to improve the preparation of African rubber for the market. The "Cashiers Coloniax," of October 18, 1918, issued by the Marseilles Colonial Institute, contains a report by Dr. Van Pelt on the subject, and a report by E. Baillaud, general secretary of the Colonial Institute, on the steps being taken to provide France with the rubber now needed. An account is given of the work being done by the bureau created in French Guiana to prevent frauds in the rubber exported from there. Reports by the Planters' Syndicate of Indo-China and by the Professional Rubber Syndicate, which is assisting the French Ministry of Armaments in the organization of production, are also published in this issue.

BRAZILIAN RUBBER IN FRANCE.

The close harmony in which French rubber manufacturers are working to obtain the quantities of rubber they need for their factories has been well illustrated by their method of handling a recent shipment of eight hundred tons of Pará which the Bank of Brazil had shipped to France. The French Professional Rubber Syndicate, a voluntary organization, controlled the distribution of this rubber, which had been sold by the Brazilian Government to the French Government. For the present, all sales of rubber from Brazil for consumption in France are strictly governmental transactions, and it is thought that this system will continue as long as official regulation of payment and ocean freight rates remain in force.

AN END TO RUBBER FRAUDS IN FRENCH GUINEA.

Formerly, rubber brokers at Liverpool and Bordeaux were continually complaining of the impurities in rubber from French Guinea, such as leaves, bark, twigs, earth, sand and gravel. One particular lot of *Landolphia owariensis* rubber was shown on analysis, to contain:

	Per cent.
Humidity	0.13
Mineral matter	4.55
Resinous matter soluble in acetone	9.70
Vegetable impurities	9.
Pure rubber	76.62
	100.00

If this analysis had applied to the whole annual production of the colony of 1,500 tons, there would have been about 375 tons of impurities. Government control (before shipment) is now so strict that the analysis of a recently exported lot gave the following results:

	Per cent.
Mineral matter	0.90
Humidity and substances soluble in acetone	4.00
Pure rubber	95.10
	100.00

Shipments now average less than five per cent impurities.

RUBBER-PLANTING INDUSTRY IN SOUTH INDIA.

At the annual meeting of the United Planters Association of Southern India, at Madras, in the latter part of August, 1918, the chairman described conditions in the rubber industry as follows:

Last year I remarked on the rapid fall in rubber price, which I thought might possibly be due to increase in home stocks, but hoped for a recovery later in the year. Rubber has been removed from the priority list, we are told, owing to currency difficulties. Freight is not available for shipment to the United Kingdom, thus cutting South Indian rubber out of the home market, and with America further restricting license for import into United States for August and September, prices are still falling, and the latest home price shows about 2*s.* per pound, practically the lowest on record. There is, at the present moment, large quantities of South Indian rubber awaiting shipment at West Coast ports. Rubber, unlike tea and coffee, has no local market to fall back on, and so financial aid is necessary and urgent. It is due to British enterprise and capital that Great Britain holds the commanding position she does as regards rubber supplies, an indispensable war requirement to her and her allies. Planters fully recognize that the best must be made of sea tonnage, and that the "best" can mean the carrying of only absolutely necessary war resuirements and food commodities. I think those rubber companies

and estates that are in need of urgent financial aid have every right to expect and claim government aid and help in the same way as it has been given to the coffee planters by means of Taccavi loans.—(Report of the American Consul, Madras, India.)

BRITISH NORTH BORNEO RUBBER.

Despite war conditions the rubber trade is reported to have enjoyed undiminished prosperity in 1917. During that year the exports amounted to 5,470,906 pounds, valued at $5,439,123 Straits dollars (Straits dollar, 56.7 cents, United States currency). This is an increase of 26 per cent over the total for 1916. The growth of the rubber industry in this region during the last 25 years is demonstrated by the fact that in 1892 the total exports of rubber amounted to $59,253, and consisted entirely of wild sorts.

Available figures for the first quarter of 1918, however, show a decrease over those for the same period of 1917—1,197,310 pounds against 1,370,321 pounds.

VIEWS ON RUBBER CROP RESTRICTION.

The uncertainty of being able to ship rubber, added to the limited American imports, is forcing to the front the question of restricting crops. It appears that, before the American action became known or was even dreamed of, many large companies had reduced their output from 20 to 30 per cent. Certain authorities suggest that events in Malaya should be carefully observed, while in the meantime the question of how to conduct eventual restrictions should be considered. The utmost economy in production is recommended. If conditions become worse, it is proposed to request the government to postpone the collection of certain taxes from such companies as are hard hit.

USE OF HYDROMETERS ON RUBBER ESTATES.

J. C. Hartjens, chemical engineer of the experimental station at Malang, Java, publishes in Bulletin No. 23, "Mededeelingen van het Proefstation Malang," an extended report on the use of the latex hydrometers known as the metrolac and the latexometer for determining the caoutchouc contents of rubber latex on plantations. The author summarized the results of his investigations as follows:

The relation between specific gravity and rubber content of latex is very much influenced by the tapping system and probably by many other factors. Latices showing the same rubber content may vary a great deal in composition of the serum and *vice versa*. Eaton's table showing the relation between specific gravity and rubber content of the latex cannot be considered reliable for general use. A limited number of latices will show the relation indicated in the table, but no practical results can be expected from the use of hydrometers. This assumption was demonstrated experimentally by the author who remarks in conclusion that very often no reading with the instruments is obtainable on account of the thick or viscous nature of the latex, air bubbles, etc., and in many cases only dubious reading is obtained, caused by minute curdling in the latex. If good readings are possible, the corresponding rubber content very often shows great differences from the actual content.

The errors made in trial coagulation are always smaller than those made in using the instruments, even after correction. In consequence the author does not recommend the use of such instruments as metrolacs and latexometers and states that trial coagulation is still the best way to get reliable results.

RAILWAY TO DEVELOP PAPUAN INDUSTRIES.

The construction of a light railway, 18 miles in length, to connect Port Moresby, Papua, with the Laloki River, to serve a copper mining enterprise is being considered. This same line, it is claimed, will also be useful to several plantations, including rubber estates. The plan had already been decided upon before the war, but was temporarily abandoned owing to the subsequent situation in Europe.

HOPEFUL OUTLOOK FOR RUBBER PRODUCERS.

WHILE admitting that the war has been a serious trial to rubber producers, the "Financial Times" emphasizes that it has brought out certain features which promise prosperity in the near future, one of the chief of which is that proof has been afforded that synthetic rubber is not a commercial possibility.

During four years the pick of German chemists have been working to produce synthetic rubber at no matter what cost. All they have succeeded in doing is to produce small quantities of a substance which, mixed with certain proportions of natural and reclaimed rubber, makes an unsatisfactory substitute. The only real success achieved in this direction, in fact, is a great improvement in the process of reclaiming and remaking waste rubber, which might be useful in preventing rubber from going too high, but would have little effect so long as the natural product was available at anything like a reasonable price.

The war has resulted in the discovery of some new uses for rubber which are likely to prove of considerable importance in the future. Chief among these is the manufacture of rubber composite soles for boots, resorted to at first owing simply to the general shortage of leather. These soles have since fully proved their value, and are, indeed, now claimed to be the best substitutes for leather soles.

There will be a big demand for rubber both in Great Britain and in the United States as soon as the war is over, and to a lesser extent also in France and Italy. To this must be added the amount which will be required to restock Belgium, Germany and Austria-Hungary, which are practically denuded of rubber, while, owing to the fancy prices which Germany has for a long time been offering, it may be presumed that there is a great lack of the commodity in all the neutral countries bordering upon the Central Empires.

Were all these demands to be met at once there would undoubtedly be not enough rubber to go around, as stocks are by no means large anywhere. In America supplies were recently calculated at about four months' normal consumption and can hardly have been increased, while in this country they are believed to be smaller still. There is probably some accumulation in the East, where companies have kept their output at the factories rather than accept the very poor prices recently offered . . . but this could not in any case be sufficiently large to have any great effect. If the industry were left to itself, therefore, and buyers had to compete against each other, we might easily see rubber for a time forced up to the extravagant level it touched in 1910, or even beyond. This prospect appears, however, to have been already foreseen by the British Government and to be the real reason for the appointment of a controller, whose first action has been to issue a warning that a maximum price may have to be fixed. It seems a little hard that an industry which was left severely alone to cope with the difficulties occasioned by the war should be promptly put under restraint when conditions take a turn in its favor, but a wild scramble for all the available supplies, with Germany—whose need is the greatest—outbidding everyone else, would raise the post-war economic problem too promptly and acutely, and would not be of real benefit in the long run.

The percentage of increase in the area under cultivation reached its highest point in 1911, but it was not until four years later that the expansion in the world's production culminated. Since 1915 the trend of the latter has been downward, and in the next four years the rate of growth will be smaller year by year, the shrinkage being measurable by the drop in the percentage of new acreage, planted. As regards other sources of supply, the output from Brazil has for the last six years remained fairly constant at about 38,000 tons per annum, and there is little reason to expect any increase from this source, while it is possible that there may be a further diminution unless a higher level of prices is established. The same applies to the output from Africa and other sources of wild rubber, which have also kept fairly steady during the last five years at between 12,000 and 13,000 tons per annum. The plantation industry in the Middle East is therefore likely to remain the sole source from which increased supplies can be obtained, and must tend more and more to dominate the crude rubber market as a whole.

The prospects for the industry generally appear, therefore, very hopeful for a period of at least ten years. At the end of that time it is possible that the increase of new plantations will have overtaken consumption, but in any such future crisis it will be the latecomers who will have to bear the brunt of the consequent fall in price, while hardly any limit can be placed on the possible extension of the use of rubber.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED SEPTEMBER 10, 1918.[1]

NO. 1,278,762. Breast pump with rubber bulb. O. O. R. Schwidetzky, Hasbrouck Heights, assignor to Becton, Dickinson & Co., Rutherford—both in New Jersey.

ISSUED SEPTEMBER 17, 1918.

1,278,822. Tire rim. J. B. Atkins, assignor to The Goodyear Tire & Rubber Co.—both of Akron, Ohio.

1,278,944. Surgical instrument with parts of both hard and soft rubber. J. T. Landis, Nashville, Tennessee.

1,279,001. Inner tube for pneumatic tires. C. R. Rawdon and J. H. Heitmann—both of St. Louis, Missouri.

1,279,006. Bath spray. W. Rose, Brooklyn, New York.

1,279,068. Combined airplane and balloon. C. J. Yasensky, Weyburn, Sask., Canada.

1,279,166. Resilient heel pad. S. Schulhoff, Trenton, New Jersey

1,279,228. Inner tube for automobie tires. G. C. Berryman, assignor of 45/100 to C. A. Jones—both of Los Angeles, California.

1,279,242. Substitute for leather and method of manufacture. G. H. Bruce, New York City.

1,279,265. Resilient cushioned wheel. H. B. Coats, Crawfordsville, Indiana.

1,279,301. Means for repairing tire casings. E. R. Dull, Chicago, Illinois.

1,279,402. Tire mounting for vehicle wheels. D. Moriarty, New Orleans, Louisiana.

1,279,444. Wind-shield cleaner. F. H. Robertson, Cleveland, O.

1,279,467. Pneumatic mattress. A. J. Smith, New York City.

ISSUED SEPTEMBER 24, 1918.

1,279,601. Fabric and rubber belt. W. W. Spadone, Brooklyn, assignor to The Gutta Percha & Rubber Manufacturing Co., New York City—both in New York.

1,279,629. Demountable tire-rim holder. W. A. Yarger, Akron, assignor of one-half to H. W. Cowgill, Canton—both in Ohio.

1,279,651. Hot-water-bottle stopper. A. S. Campbell, Medford, Massachusetts. (Original application divided.)

1,279,694. Cushion tire. L. Hofmeister, Milwaukee, Wisconsin.

1,279,718. Rubber-coated cord. S. G. Lewis, Greensburg, Pennsylvania.

1,279,719. Tennis racket with rubber-coated wire-wound stringing. S. G. Lewis, Greensburg, Pennsylvania.

1,279,720. Tennis racket with stringing of rubber-coated vegetable fiber. S. G. Lewis, Greensburg, Pennsylvania.

1,279,764. Legging of elastic webbing, with non-elastic ends. P. J. Savage, New York City.

1,279,821. Fountain pen. C. L. Aragon, Reno, Nevada.

1,279,836. Tire casing. A. S. Burdick, assignor to Burdick Tire & Rubber Co.—both of Chicago, Illinois.

1,279,855. Rubber glove with thicker thumb and forefinger and ribs across inner side. J. D. Garvey, Chicago, Illinois.

1,279,924. Golf-training device. C. F. Smith, White Plains, New York.

1,279,925. Pneumatic cue. E. B. Smith, Chicago, Illinois.

1,279,926. Shaving-brush massage attachment. J. Smith, Jr., Phillipsburg, New Jersey.

1,279,936. Inflated ball. R. H. Taylor, Rochester, New York.

1,280,086. Armored tire. H. G. Robbins, Los Angeles, California.

ISSUED OCTOBER 1, 1918.

1,280,145. Demountable tire-rim. W. N. Booth, assignor to Kelsey Wheel Co., Inc.—both of Detroit, Michigan.

1,280,149. Cork-lined rubber boot. G. D. Breck, Cleveland, Ohio, assignee of W. J. Merten, Pittsburgh, Pennsylvania.

1,280,170. Inner-grooved rubber hose and method of manufacture. N. D. Crawford, Elizabeth, New Jersey, assignor to New York Belting and Packing Co., New York City.

1,280,176. Tire rim. F. L. Darling, Long Beach, California.

1,280,184. Garment supporter. I. Dow, assignor of one-half to E. L. Allen—both of Burlington, Vermont.

1,280,197. Imitation-leather shoe with rubber upper, and method of manufacture. A. G. Emery, New York City, assignor to The Goodyear's Metallic Rubber Shoe Co., Naugatuck, Connecticut.

1,280,220. Cushion wheel. I. Hayman, Los Angeles, California.

1,280,247. Button loop for garment supporters. C. P. Kuehn, assignor to A. Stein & Co.—both of Chicago, Illinois.

1,280,363. Rubber paving for roads, etc. G. Anderson, London, England.

1,280,382. Non-skid tire tread. O. Braunwarth, New York City.

1,280,421. Lined waterproof mitten. H. J. Diem, assignor of one-half to Sanford Narrow Fabric Co.—both of New York City.

ISSUED OCEOBER 8, 1918.

1,280,692. Paper-cup holder with elastic rim-engaging device. C. Errett, New York City, assignor to Public Service Cup Co., Brooklyn—both in New York.

1,280,808. Pneumatic tire. D. F. Morgan, assignor to Hofmann-Morgan Rubber Co.—both of Chicago, Illinois.

1,280,836. Adjustable shoe-heel with rubber cushion. S. Quevedo, Havana, Cuba.

1,280,957. Rubber composition substitute for shoe-soles and method of manufacture. G. H. Bruce, Brooklyn, New York.

1,281,110. Garment supporter. B. H. White, Chicago, Illinois.

1,281,134. Fountain pen with separate attachable filling reservoir, etc. J. L. Clarke, Leamington Spa, England; D. E. and R. A. Clarke and C. S. Raymond-Barker, executors of said J. L. Clarke, deceased.

1,281,194. Self-filling fountain pen. F. H. Mooney, Chicago, Illinois, assignor to The Conklin Pen Manufacturing Co., Toledo, Ohio.

1,281,211. Respirator. E. D. Rogers, Oakdale, Louisiana.

1,281,220. Rubber and fabric composition shoe sole. J. Solomon, Oberlin, Ohio.

[1] For other patents under this date, see THE INDIA RUBBER WORLD, November 1, 1918.

THE DOMINION OF CANADA.

PUBLISHED JULY 31, 1918.

185,288. Demountable tire-rim. C. R. Tizzard, Humber Bay, Ontario.

185,328. Resilient tire. The Runyan Cushion Wheel Co., assignee of A. L. Runyan—both of Omaha, Nebraska, U. S. A.

185,329. Resilient wheel. The Runyan Cushion Wheel Co., assignee of A. L. Runyan—both of Omaha, Nebraska, U. S. A.

185,473. Resilient tire. R. Blakoe, London, England.

185,608. Electrical cable. H. W. Fisher, Huguenot Park, Staten Island, New York, U. S. A.

185,639. Tire valve. H. F. Miller, Rushville, Nebraska, U. S. A.

185,735. Artificial ear drum. E. Baum, Philadelphia, Pennsylvania, U. S. A.

185,744. Resilient tire. L. E. Clawson, San Francisco, California, U. S. A.

185,837. Cushion tire. J. T. Trotter, New York City, U. S. A.

THE UNITED KINGDOM.

PUBLISHED OCTOBER 9, 1918.

118,054. Rubber-covered rollers. F. Reddaway & Co., and J. Muskett, Cheltenham street, Pendleton, Manchester.

118,118. Self-filling fountain pen. F. Riesenberg, Schoolship "Newport," care of Postmaster, New York City, U. S. A. (Not yet accepted.)

118,130. Point protectors for fountain pens. R. Fallows, Dungiven, Londonderry.

118,149. Rubber-studded metal tire for tractors, etc. Dunlop Rubber Co., 14 Regent street, London, and C. Macbeth, Para Mills, Aston, Birmingham.

118,176. Collapsible gas-containers for motor vehicles. United Automobile Services Limited, Great Eastern Garage, Lowestoft, and J. C. Jolly, Cockton Hill, Bishop Auckland, Durham.

PUBLISHED OCTOBER 16, 1918.

118,327. Inflatable and deflatable gas-containers for motor vehicles. G. P. Ottino, 33 Chichester Road, Kilburn, London.

PUBLISHED OCTOBER 23, 1918.

118,447. Fountain pen. G. Dalton, 21 Norman Road, Canterbury, Kent.

118,472. Improvements in kite balloons. Aeronautical Instrument Co., and G. Brewer, 33 Chancery Lane, London.

118,474. Improvements in kite balloons. Aeronautical Instrument Co., and G. Brewer, 33 Chancery Lane, London.

118,500. Rubber tension cords for deadening landing-shock of airplanes. A. F. Hawksley, Fairhaven, Lytham, Lancashire.

118,507. Syringe bulb formed integrally with nozzle. G. W. Jessup, 44 Bromfield street, Boston, Massachusetts, U. S. A.

118,523. Self-filling fountain pen. H. W. Horne, 27 Rose street, Edinburgh.

118,554. Rubber ring for artificial legs. E. Paoletti, 25 Corso dei Tintori, Florence, Italy.

118,571. Rubber buffers for joints for artificial limbs. E. Smith, 124 St. Stephen's Green, West, Dublin.

PUBLISHED OCTOBER 30, 1918.

118,641. Tire valve. H. P. Kraft, 219 Godwin avenue, Ridgewood, New Jersey, U. S. A. (Not yet accepted.)

118,745. Stocking suspenders. A. J. D'Ostroph, Key West, Monroe, Florida. U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

487,592. (April 2, 1917.) Improvements in pneumatic shock absorbers for airplanes. E. Koper.

487,599. (November 15, 1917.) Improvements in temporary or permanent supports for solid tires of vehicles. B. Lee and S. H. Lee.

487,696. (November 20, 1917.) Armored pneumatic tire. J. E. Dysart.

487,709. (November 21, 1917.) Pneumatic tire for vehicle wheels. W. D. McNaull.

487,794. (November 28, 1917.) Improvements in elastic fabrics. P. L. Josserand.

Chemical Patents will be found on page 168. Machinery Patents on page 144.

487,943. (September 15, 1917.) Method of making heels and soles for shoes. Ch. Planchamp.

487,970. (December 12, 1917.) Tips for crutches and canes. C. Lynde and P. Jariel.

TRADE MARKS.

THE UNITED STATES.

NO. 74,439. The word MOTOBESTOS above a conventional bowl-shaped silhouette—brake linings and friction facings. The Asbestos and Rubber Works of America, New York City.

83,024. The word STELLA beneath a circle within which is a star having the characters P and &C on either side of the top point and the letter M between the two bottom ones—rubber goods or goods incorporating rubber, namely, aprons for paper mills and sheets for mining concentrators. Pirelli & C., Milan, Italy.

96,259. Conventional silhouette bearing the monogram W. T. Co.—hot-water bottles and bags, douche bags, syringes, invalid cushions, and ice bags. Whitall Tatum Co., New York City.

107,893. The word DIRECTORY—stylographic and fountain pens, etc. Hinks, Wells & Co., Birmingham, England.

108,505. The word LIBERTY beside a representative of the figure of Liberty holding aloft a tire—rubber tires. Liberty Tire & Rubber Co., Green Bay, Wisconsin.

110,577. Silhouette of Ajax rolling a tire—pneumatic-tire accessories, plaster-patches, blowout patches, hook-on boots, reliners, floating flaps, rubber and fabric valve-bases, cementless tube-patches, and oval inner-tube patches. Ajax Rubber Co., Inc., Millbrook, New York.

111,844. The word APACHE—self-vulcanizing tires. M. J. Cagle, San Francisco, California.

112,103. Silhouette of a star—billiard and pocket-billiard balls. The Brunswick-Balke-Collender Co., Chicago, Illinois.

112,532. The word LABRUCO—pure cut sheet india rubber, india rubber bottle stoppers, sheets, and mats. The Leyland & Birmingham Rubber Co., Limited, Leyland, England.

THE DOMINION OF CANADA.

23,650. The word WOVELASTIC—surgical bandages and bandaging material. Reid Brothers, Seattle, Washington, and San Francisco, California, U. S. A.

23,677. The word KOCHUK—general. Rubberset Co., Limited, Toronto, Ontario.

23,681. Representation of a shield bearing the word EFFICIENCY and the monogram R. B.—hot-water bottles, ice bags, inflatable invalid cushions, rubber syringes, etc. Reid Brothers, Seattle, Washington, and San Francisco, California, U. S. A.

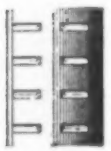
23,707. The letters I. T. S.—rubber shoe heels and rubber goods of all kinds. W. Jeffries, Beamsville, and H. C. Jeffries, Toronto—both in Ontario.

DESIGNS.

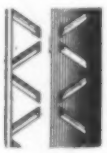
THE UNITED STATES.

NO. 52,430. Tire. Term 14 years. Patented September 17, 1918. L. P. Destribats. Trenton, New Jersey, assignor to Ajax Rubber Co., Inc., Milbrook, New York.

52,431. Tire. Term 14 years. Patented September 17, 1918. L. P. Destribats, Trenton, New Jersey, assignor to Ajax Rubber Co., Inc., Milbrook, New York.



52,430



52,431

52,459

52,459. Tire. Term 14 years. Patented September 17, 1918. H. A. Phillips and J. G. Stamm—both of Cleveland, Ohio.

52,500. Golf ball. Term 14 years. Patented September 24, 1918. P. A. Vaile, New York City, assignor to Revere Rubber Co., Providence, Rhode Island.

ASBESTOS IN THE PHILIPPINES.

A number of years ago reports were received in Manila to the effect that there were deposits of asbestos in the province of Ilocos Norte, and in 1906 Dr. W. D. Smith, geologist of the Bureau of Science, made a technical reconnaissance and reported that evidence was plentiful of the existence of considerable quantities of asbestos at a place called Dungon-Dungon.

A corporation, to be known as the Dungon-Dungon Co., is now being formed, which will continue to give special attention to opening up the asbestos deposits and making this material available for market. Its property is located near Laoag, Ilocos Norte, about two and one-half miles inland from the sea on a stream that is navigable for small craft.—("Manila Merchants' Association Review.")

WHAT TEAM WORK AND EMULATION ACCOMPLISH.

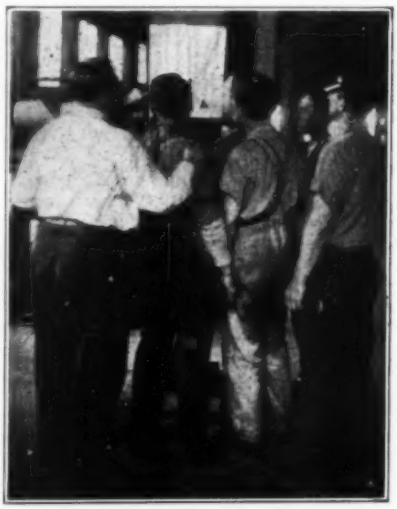
AT the Elmira, Ontario, plant of the Dominion Rubber System, the spirit of team work has been invoked to speed up production. As the success of such a campaign depends upon definite individual knowledge of the collective results, a great clock was erected showing the daily production of this factory in pairs of footwear. Watching the advancing hand has stimulated such enthusiasm that in a little more than three months production has been increased beyond 2,000 pairs a day, a very commendable record.

PRODUCTION CLOCK.

The Miller Rubber Co., Akron, Ohio, has found a very comprehensive way to foster enthusiasm and speed up production, with results that are most satisfactory to all concerned.

The plan is both individually and collectively stimulative and hinges upon emulation, which has been said to be the mainspring of efficiency. A bonus for the best individual records and competition between departments have resulted in remarkably high quality and huge quantity of product. A series of percentages has been arranged and the workmen are penalized a certain number of points for tardiness, absence, blemished articles and less than the average standard of quantity. At the end of each month prizes are awarded for the following records:

100 per cent....$10.00
95 per cent.... 7.50
90 per cent.... 5.00



TEAM WORK.

In addition to these individual rewards, the total average department records are posted regularly each month on special bulletin boards to stimulate departmental pride. These bulletins are jealously watched and a keen, friendly rivalry exists. So productive was this plan in the expenditure of more concentrated energy that even the change of schedule from a nine to an eight-hour day was made at piece-work rates with great increase of earnings to the operatives and correspondingly augmented production. Thus it is proved again that work that means certain, direct, personal benefit is entered into with all the zest of a thrilling game.

GOODYEAR INCREASES COTTON ACREAGE.

Pleased with the results of its 1918 campaign, the largest grower of Egyptian cotton in America, the Goodyear company, is already buying more land to put into this high priced staple. This concern has 12,000 acres of the silky cotton in the Salt River Valley in Arizona, and next year will plant 2,000 acres additional. The crop this year is above normal, it is declared, and a small army of Mexicans is at work picking it.

Review of the Crude Rubber Market.

Copyright, 1918.

NEW YORK.

THE somnolence of the market has ceased, the drowsy feeling which afflicted buyers and sellers until November 11, has vanished. In the first place, the Government permits the importation of 7,500 tons over and above the 25,000 tons allowed for the present period, besides which many expect a further increase in the quantities that may be imported after January 1, some even hope for an early abolition of all import restrictions. At the same time it may be well remembered that next year, lack of shipping may have more to do with the total volume of imports than any probable Government restrictions. Sellers are now asking almost as high prices as the maximum fixed by the Government, and buyers who would not buy at lower figures a few weeks ago are showing considerable interest in spite of the higher quotations.

"The Dutch East Indies Government has stopped the export of rubber, on October 8, 1918," says the "Straits Budget," from which we also learn that a new department of the Dutch Foreign Office has been established to unify economic and foreign policy and especially to renew economic relations with the belligerents.

PLANTATIONS.—Allocated rubber was quoted on November 12 at 51 cents for Latex and 49 cents for Ribs; April-June shipments were quoted at 53 cents for Latex and 52 cents for Ribs. Free rubber prices were, on November 26, 60 cents for Latex and 59 cents for Ribs.

PARÁS.—Quotations, with the upward tendency continuing strongly, are: Upriver fine, 66 to 68 cents (a month ago 56 to 58 cents); Upriver coarse, 38 to 40 cents (a month ago 30 to 32 cents); Upper caucho ball, 38 to 40 cents (a month ago 30 to 32 cents); Cametà, 26 to 28 cents (a month ago 21 to 22 cents).

CENTRALS.—Fractional changes only, untouched by the upward swing.

NEW YORK SPOT QUOTATIONS.

Following are the New York spot quotations, one year ago, and allocation and free rubber prices on November 25. Government option prices, c. i. f. New York, are given in the last column.

	Spot. Dec. 1, 1917.	Allocated. Nov. 25, 1918.	Free. Nov. 25, 1918.	Gov't. Nov. 25, 1918.
PLANTATION HEVEA—				
First latex crêpe / *Hevea first crêpe	56½@	54 @	61½@	63
Amber crêpe No. 1	49 @	52 @	57 @	60
Amber crêpe No. 2	48 @	47 @	56 @	60
Amber crêpe No. 3	47 @	46 @	55 @	58
Amber crêpe No. 4	46 @	45 @	54 @	57
Brown crêpe, thick clean	48 @	44 @	53 @	60
Brown crêpe, thin clean	49 @	42 @	53 @	60
Brown crêpe, thin specky	45 @	38 @	49 @	50
Brown crêpe, rolled	35 @	34 @	43 @	44
Smoked sheet, ribbed standard quality / *Hevea ribbed smoked sheets	55 @	52 @	60½@	62
Smoked sheet, plain standard quality / *Hevea plain or smooth smoked sheets	52 @	@	@	61
Unsmoked sheet, standard quality / *Hevea unsmoked sheets	49 @	50 @	@	60
Colombo scrap No. 1	41 @	@	@	46
Colombo scrap, No. 2	39 @	@	@	44
BRAZILIAN PARAS—				
Upriver fine	55 @	58 @	64 @67	68
Upriver medium	50 @	52 @	@	63
Upriver coarse	35 @37	34 @	38 @39	40
Upriver weak fine	47 @	43 @	52 @	50
Upper caucho ball	35 @	33 @	38 @39	40
Islands fine	45 @	47 @	@	59
Islands medium	40 @	42 @	@	52
Islands coarse	25 @	22 @	27 @	27
Cametá	25 @	23 @	27 @	28
Lower caucho ball	34 @	31 @34	@	36
Peruvian fine	@	@	@	67
Tapajos fine	51 @	55 @58	@	60
AFRICANS—				
Niger flake, prime	@	25 @	28 @	28
Benguela, extra No. 1, 28%	33 @	30 @	33 @	33
Benguela, No. 2, 32½%	30 @	26 @	29 @	29
Congo prime, black upper	54 @	45 @	48 @	48
Congo prime, red upper	42 @	45 @	48 @	48
Rio Nunez ball	60 @	@	@	55
Rio Nunez sheets and strings	60 @	@	@	
Conakry niggers	60 @	@	@	55
Massai sheets and strings	60 @	@	@	55
CENTRALS—				
Corinto scrap	35 @	36 @	39 @	39
Esmeralda sausage	35 @	36 @	39 @	39
Central scrap	34 @	35 @	39 @	39
Central scrap and strip, 75 per cent	32 @	34 @	34 @35	
Central wet sheet, 25 per cent.	@	@	@	
Guayule, 20% guarantee	25 @	26 @	32 @	48
Guayule, dry	27 @	35 @	35 @	48
MANICOBAS—				
Ceara negro heads	@	@	@	37
Ceara scrap	@	@	@	37
Manicoba (basis 30% loss washing and drying)	@	@	@	36½
Mangabeira thin sheet	@	@	@	35
EAST INDIAN—				
Assam crêpe	@	@	@	58
Assam onions	@	@	@	54
Penang block scrap	@	@	@	37
BALATA—				
Block, Ciudad Bolivar	@	70 @	71 @	71
Colombia	76 @	58½@	60 @	61
Panama	53½@	56½@	58 @	59
Surinam sheet	82 @	@	95 @	95
amber	@	@	@	97
PONTIANAK—				
Banjermassin	12 @13	@	@	15
Palembang	@	@	@	16
Pressed block	19½@	@	@	25
Sarawak	@	@	@	14
GUTTA PERCHA—				
Gutta Siak	19 @	@	@	28
Red Macassar	2.00 @2.20	@	@	3.00

*Rubber Association of America nomenclature.

RECLAIMED RUBBER.

Dullness has characterized the November market for reclaimed rubber, a condition that has ruled since the armistice, in all markets for rubber supplies. Buyers have apparently decided to await the Government's final policy with regard to raw materials and manufactured products. The release of an additional 7,500 tons of rubber imports and the removal and modification of restrictions in the manufacture of certain rubber products is an indication that the Government will soon relieve the industry of all restriction. Prices have not changed materially.

NEW YORK QUOTATIONS.

NOVEMBER 25, 1918.

Subject to change without notice.

Standard reclaims:			
Floating	lb.	.35 @	.40
Friction	lb.	.35 @	.40
Mechanical	lb.	.12 @	.13
Red	lb.	.20 @	.25
Shoe	lb.	.15 @	.15½
Tire, auto	lb.	.18 @	.18½
truck	lb.	.13 @	.13½
White	lb.	.24 @	.25

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers, broker in crude rubber and commercial paper, No. 3 William street, New York, advises as follows:

During November the demand for commercial paper has been light, due largely to the recent drive for the Fourth Liberty Loan and the United War Work Campaign, and the demand for paper has been principally from out-of-town banks, the best rubber names going at 6 to 6½ per cent, and those not so well known 6¾ to 7 per cent. From now on there is a prospect of improving demand and somewhat lower rates, as the money market should be easier.

COMPARATIVE HIGH AND LOW RUBBER PRICES.

November.

Plantations:	1918. Allocated.	1918. Free.	1917.	1916.
First latex crêpe	$0.52@0.41	$0.63 @0.60	$0.64 @0.57	
Smoked sheet ribbed	.51@ .46	.61½@ .58½	.62 @ .55½	
Parás:				
Upriver, fine	.66@ .57½	.68 @ .66	.63 @ .55	$0.80@0.71
Upriver, coarse	.38@ .31	.40 @ .36½	.42½@ .37	.46@ .42
Islands, fine	.57@ .44	.59 @ .55	.49 @ .45	.71@ .60
Islands, coarse	.25@ .21½	.27 @ .26	.27¼@ .25	.33@ .29
Cametá	.26@ .21	.28 @ .25	.27½@ .25	.35@ .31

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [October 18, 1918]:

The immediate effect of the report issued by the Rubber Commission was a sharp rise in prices, and the weekly auction opened on Wednesday to a strong market. Fine pale crêpe sold up to 58½ cents and ribbed smoked sheet up to 57½ cents—8 and 5 cents, respectively, above last week's top prices. These higher values were barely maintained, the best prices paid in the concluding stage of the sale to-day being 57½ cents for crêpe and 53½ cents per sheet. Clean brown and dark crêpes were in good demand at about 4 cents above last week's prices. The quantity catalogued was 1,260 tons, of which 671 tons changed hands.

The following was the course of values:

	In Singapore, per Pound.[1]	Sterling Equivalent per Pound in London.
Sheet, fine ribbed smoked	52c @ 57½c	1/ 7¼ @ 1/ 9¼
Sheet, good ribbed smoked	39 @ 52	1/ 4 @ 1/ 7¼
Sheet, plain unsmoked	39 @	1/ 4 @
Crêpe, fine pale	55 @ 58½	1/ 8½ @ 1/ 9¼
Crêpe, good pale	41 @ 54½	1/ 4¾ @ 1/ 8¾
Crêpe, fine brown	34½ @ 38	1/ 2¾ @ 1/ 3¾
Crêpe, good brown	30½ @ 34	1/ 1¾ @ 1/ 2¾
Crêpe, dark	24 @ 32½	/11¾ @ 1/ 2¾
Crêpe, bark	12 @ 23	/ 8¾ @ /11½
Scrap, loose	14½ @	/ 9⅛ @

[1]Quoted in S. S. currency.

PLANTATION RUBBER EXPORTS FROM JAVA.

To—	August. 1917.	August. 1918.	Eight Months Ended August 31, 1918. 1917.	Eight Months Ended August 31, 1918. 1918.
England ..... *kilos*	42,000	.....	1,658,000	1,659,000
United States	921,000	213,000	10,377,000	4,847,000
Canada	.....	83,000	.....	
Singapore	155,000	667,000	1,011,000	5,874,000
Japan	.....	22,000	.....	663,000
Australia	6,000	303,000	18,000	.....
Other countries	.....	.....	.....	813,000
Totals	1,124,000	1,288,000	13,064,000	13,856,000
From—				
Batavia	803,000	969,000	7,746,000	7,181,000
Samarang	11,000	10,000	144,000	125,000
Soerabaya	306,000	309,000	4,931,000	6,085,000
Other ports	4,000	.....	243,000	465,000
Totals	1,124,000	1,288,000	13,064,000	13,856,000

MONTHLY IMPORTATIONS OF CRUDE RUBBER INTO THE UNITED STATES.

1918.	Plantations.	Parás.	Africans.	Centrals.	Guayaule.	Manicoba and Matto-Grosso.	Totals for 1918.	Totals for 1917.
January ....*tons*	15,201	710	...	140	33	...	16,084	12,788
February	9,715	3,108	68	79	120	18	13,108	10,162
March	14,999	1,699	52	122	287	2	17,161	18,624
April	12,703	481	58	37	129	17	13,425	13,000
May	13,783	2,019	174	189	123	...	16,288	18,411
June	21,787	2,146	10	12	60	109	24,124	15,096
July	13,657	2,260	28	88	59	...	16,092	13,416
August	8,473	1,744	61	32	111	...	10,421	17,290
September	4,613	311	124	29	74	...	5,151	13,664
October	7,299	1,958	150	9	93	...	9,509	8,970

(From figures compiled by The Rubber Association of America, Inc.)

EXPORTS OF INDIA RUBBER FROM MANAOS DURING AUGUST, 1918.

EXPORTERS.	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Grand Totals.
General Rubber Co. of Brazil ..... *kilos*	236,784	94,086	93,873	423,257	848,000
J. A. Mendes & Co.	81,593	24,570	44,934	28,963	180,060
Tancredo, Porto & Co.	111,581	5,122	5,280	58,749	180,732
Stowell & Co.	63,802	6,564	49,178	30,060	149,604
Totals	493,760	130,342	193,265	541,029	1,358,396
In transit Iquitos	7,692	35,691	11,522	40,620	95,525
Totals	501,452	166,033	204,787	581,649	1,453,921

(Compiled by Stowell & Co., Manaos.)

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

[The Figures Indicate Weight in Pounds.]

PARAS.

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
AUGUST 31. By the *Sergipe*, from Manaos.						
General Rubber Co.	.....	.....	.....	448,000	.....	448,000
SEPTEMBER 10. By the *Curvello*, from Para and Manaos.						
General Rubber Co.	.....	.....	.....	212,800	.....	212,800
OCTOBER 17. By the *Aug. N. Snow*, from Para.						
General Rubber Co.	112,000	.....	13,440	56,000	.....	181,440
OCTOBER 31. By the *Maud Morey*, from Para and Manaos.						
H. A. Astlett & Co.	162,000	.....	49,000	.....	40,000	251,000
Poel & Kelly	299,000	45,000	69,500	242,000	.....	655,500
Meyer & Brown	163,500	15,700	89,600	134,000	.....	403,200
General Rubber Co.	112,000	112,000	67,200	134,400	67,200	492,800
NOVEMBER 11. By the *Nat. L. Gorton*, from Para.						
H. A. Astlett & Co.	4,500	.....	32,000	12,000	.....	48,500

ARRIVALS AT THE PORT OF NEW YORK.

GUAYULE.

	Pounds.
OCTOBER 29. By the *Almirante*, No. 16, from Eagle Pass, Texas:	
Continental-Mexican Rubber Co.	97,000
NOVEMBER 18. By rail to Akron from Eagle Pass, Texas:	
Continental-Mexican Rubber Co.	68,000

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

PLANTATIONS.

	Pounds.
SEPTEMBER 23. By the *Oranje*, from San Francisco:	
General Rubber Co.	1,006,000
OCTOBER 18. By the *Kowa Maru*, from Far East:	
J. T. Johnstone & Co.	110,800
OCTOBER 23. By the *Matsura Maru*, from Far East:	
J. T. Johnstone & Co.	38,500
OCTOBER 23. By the *Tenpaisan Maru*, from Far East:	
J. T. Johnstone & Co.	4,600
OCTOBER 30. By the *Suki Maru*, from Singapore:	
Meyer & Brown	119,400
Poel & Kelly	145,000
Fred. Stern & Co.	20,160 — 284,560
NOVEMBER 1. By the *Rembrandt*, from Batavia:	
Meyer & Brown	44,800
NOVEMBER 2. By the *City of Key West*, from Singapore:	
Poel & Kelly	44,800
General Rubber Co.	2,986,000 — 3,030,800
NOVEMBER 6. By the *Shinyo Maru*, from Hong Kong:	
J. T. Johnstone & Co.	25,500
NOVEMBER 6. By the *Tjisondari*, from ——:	
J. T. Johnstone & Co.	38,080
NOVEMBER 7. By the *Kaisha Maru*, from Singapore:	
General Rubber Co.	571,200
Fred. Stern & Co.	230,720 — 801,920
NOVEMBER 7. By the *Ning Chow*,	
NOVEMBER 7. By the *Ning Chow*, from the Far East:	252,000
By the *Karimata*, from the Far East:	56,000
Fred. Stern & Co. By the *Arabia Maru*, from the Far East:	197,120
By the *Siwa Maru*, from the Far East:	4,480
By the *Taika Maru*, from the Far East:	33,600
NOVEMBER 8. By the *Ning Chow*, from Yokohama:	
Poel & Kelly	45,000
NOVEMBER 21. By the *East Wind*, from San Francisco:	
Poel & Kelly	48,000

CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS STATED BY SHIPS' MANIFESTS.

SEATTLE AND TACOMA.

PLANTATIONS.

(Figured 180 pounds net to the case or bale.)

TO KITCHENER, ONTARIO.	Pounds.
OCTOBER 25. By the *Arabia Maru*, from Kobe, via Yokohama: Transshipped from Yokohama.	
Kaufman Rubber Co.	81,000
[2]NOVEMBER 14. By the *Kenkon Maru*, No. 8, from Kobe, via Yokohama:	
Kaufman Rubber Co.	33,020

[2]Arrived at Tacoma.

TO NEW YORK.

	Pounds.
OCTOBER 25. By the *Arabia Maru*, from Singapore:	
Poel & Kelly	208,080
Fred. Stern & Co.	153,000
J. T. Johnstone & Co.	40,320 — 401,400
OCTOBER 25. By the *Arabia Maru*, from Penang, via Yokohama:	
Alden's Successors, Limited	11,160
Robinson & Co.	46,800
William H. Stiles	14,040 — 72,000
OCTOBER 29. By the *Suki Maru*, from Singapore, via Manila:	
F. H. Henderson & Co.	10,440
Meyer & Brown	108,180
L. Littlejohn & Co.	155,520
Poel & Kelly	108,720
Rubber Trading Co.	151,920
Ed. Maurer & Co.	239,400
William H. Stiles	67,500 — 841,680
[3]OCTOBER 30. By the *Eastern Light*, from Batavia, via Kobe:	
Various	363,780

[3]Transshipped by the *Hosei Maru* from Hong Kong.

NOVEMBER 7. By the *Ning Chow*, from Deli, via Yokohama:		
Alden's Successors, Limited	28,080	
Robinson & Co.	1,800	
Fred. Stern & Co.	3,600	33,480
NOVEMBER 7. By the *Ning Chow*, from Penang, via Yokohama:		
Alden's Successors, Limited	5,400	
Fred. Stern & Co.	28,800	34,200

		Pounds.
NOVEMBER 7. By the *Ning Chow*, from Port Dickson, via Yokohama:		
Fred Stern & Co.		32,400
[4]NOVEMBER 7. By the *Ning Chow*, from Port Swettenham, via Yokohama:		
Alden's Successors, Limited...	86,940	
Robinson & Co.	24,120	111,060
[4]NOVEMBER 7. By the *Ning Chow*, from Singapore, via Yokohama:		
Chas. T. Wilson & Co.	108,720	
Ed. Maurer & Co.	5,760	
Poel & Kelly	22,520	137,000

[4]Arrived at Seattle.

GUTTA.

NOVEMBER 7. By the *Ning Chow*, from Yokohama:		
United Malaysian Rubber Co. (Gutta siak.)		75,600

TO SEATTLE, WASH.

OCTOBER 25. By the *Arabia Maru*, from Belawan, via Yokohama:		
The Goodyear Tire & Rubber Co.		66,060
OCTOBER 25. By the *Arabia Maru*, from Penang, via Yokohama:		
Alden's Successors, Limited...	225,000	
Poel & Kelly	4,680	
Fred. Stern & Co.	1,980	231,660
OCTOBER 25. By the *Arabia Maru*, from Singapore, via Yokohama:		
Mitsui & Co., Limited.	207,540	
Fred. Stern & Co.	25,200	
W. R. Grace & Co.	5,220	
Alden's Successors, Limited...	8,820	
The Goodyear Tire & Rubber Co.	51,300	
J. T. Johnstone & Co.	106,560	404,640
OCTOBER 29. By the *Suki Maru*, from Singapore, via Manila:		
Alden's Successors, Limited...	42,480	
Curry, McPhillips & Co.	53,280	
L. Littlejohn & Co.	170,100	
Fred. Stern & Co.	23,080	
J. T. Johnstone & Co.	256,860	
The Goodyear Tire & Rubber Co.	38,880	
United Malaysian Rubber Co..	50,580	635,260
[5]OCTOBER 30. By the *Eastern Light*, from Singapore, via Kobe:		
The B. F. Goodrich Co.		112,680

[5]Transshipped by the *Hosei Maru* from Hong Kong.

NOVEMBER 7. By the *Ning Chow*, from Deli, via Yokohama:		
The Goodyear Tire & Rubber Co.		86,400
NOVEMBER 7. By the *Ning Chow*, from Penang, via Yokohama:		
J. T. Johnstone & Co.		61,200
NOVEMBER 7. By the *Ning Chow*, from Port Swettenham, via Yokohama:		
Alden's Successors, Limited...	5,240	
Robinson & Co.	5,400	
The Goodyear Tire & Rubber Co.	56,700	67,340
NOVEMBER 7. By the *Ning Chow*, from Singapore, via Yokohama:		
J. T. Johnstone & Co.	112,500	
Fred. Stern & Co.	160,200	
The B. F. Goodrich Co.	812,340	
Rubber Importers and Dealers Co., Inc.	35,100	
Alden's Successors, Limited...	140,940	1,261,080
NOVEMBER 14. By the *Kenkon Maru*, from Kobe, via Yokohama:		
L. Littlejohn & Co.	50,400	
The Goodyear Tire & Rubber Co.	5,940	56,340

TO WATERTOWN, MASS.

NOVEMBER 7. By the *Ning Chow*, from Singapore, via Yokohama:		
Hood Rubber Co.		441,080

TO VANCOUVER.

OCTOBER 25. By the *Arabia Maru*, from Singapore, via Yokohama:		
Gutta Percha and Rubber, Limited.		37,980

SAN FRANCISCO.

PLANTATIONS.

OCTOBER 30. By the *Shinyo Maru*, from Hong Kong:		
Rubber Trading Co.	14,040	
F. R. Henderson & Co.	145,080	159,120
NOVEMBER 1. By the *Rembrandt*, from Batavia:		
Winter, Son & Co.	49,320	
Meyer & Brown	50,760	100,080
NOVEMBER 6. By the *Venezuela*, from Hong Kong:		
Rubber Trading Co.	17,460	
Robinson & Co.	4,500	
Alden's Successors, Limited...	4,500	26,460
NOVEMBER 6. By the *Bintang*, from Batavia:		
Winter, Son & Co.		87,840
NOVEMBER 15. By the *Kawi*, from Batavia:		
Poel & Kelly		57,420

[1]Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

CUSTOM HOUSE STATISTICS.

PORT OF NEW ORLEANS, LA.—OCTOBER, 1918.

IMPORTS:	POUNDS.	VALUE.
India rubber	134,400	$18,819
Gutta percha	367,360	66,125
Totals	501,760	$84,944
EXPORTS	None	None

PORT OF DISTRICT OF MICHIGAN.

IMPORTS:	POUNDS.	VALUE.
India rubber	336,194	$150,439
Manufactures of india rubber.	.....	408
Total		$150,847
EXPORTS:		
Rubber scrap	6,784	$794
India rubber boots—*pairs*...	6,252	21,033
India rubber shoes—*pairs*...	2,056	1,686
Automobile tires	.....	34,342
Other rubber tires.	.....	1,850
Belting, hose, etc.	.....	5,226
Druggists' rubber sundries..	.....	3,065
All other manufactures of india rubber	.....	12,949
Total		$80,945

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	September, 1918.	
UNMANUFACTURED—	POUNDS.	£.
Crude rubber:		
At—		
London	2,747,900	304,063
Liverpool	5,171,800	582,363
Totals	7,919,700	886,426
Waste and reclaimed rubber:		
At—		
London and Liverpool	.....	.....

EXPORTS.

Waste and reclaimed rubber:		
From—		
London	18,400	747
Liverpool	224,400	9,816
Totals	242,800	10,563

REEXPORTS.

Crude rubber:		
From—		
London	1,895,500	206,778
Liverpool	103,000	14,269
Totals	1,998,500	221,047
Waste and reclaimed rubber:		
From—		
London and Liverpool	.....	.....

EXPORTS OF AMERICAN RUBBER GOODS, FISCAL YEAR ENDED JUNE 30, 1918. (BY COUNTRIES.)

EXPORTED TO—	Belting, Hose and Packing.	Boots.		Shoes.		Druggists' Rubber Sundries.	Tires.		All Other Manufactures of Rubber.	Total
EUROPE:	Value.	Pairs.	Value.	Pairs.	Value.	Value.	Automobile. Value.	All Other. Value.	Value.	Value.
Azores and Madeira Islands	$29	.....	.....	113	$69	.....	$72	.....	$17	$187
Denmark	.....	1	$4	3	6	.....	.....	.....	713	723
France	23,935	1,254,623	3,913,450	.....	.....	$47,746	661,648	$57,697	1,031,684	5,736,160
Gibraltar	.....	.....	.....	.....	.....	.....	129	.....	.....	129
Greece	.....	.....	.....	.....	.....	.....	2,000	.....	59	2,059
Iceland and Faroe Islands	.....	2,330	5,116	8,893	6,188	65	.....	38	228	11,635
Italy	9,973	264	882	8,680	4,896	20,897	55,913	7,244	182,982	282,787
Netherlands	580	.....	.....	.....	.....	.....	215	.....	.....	795
Norway	387	12	77	12	21	.....	525	125	13,119	14,254
Portugal	2,657	.....	.....	.....	.....	1,138	15,448	6,311	6,274	31,828
Russia in Europe	16,600	1,848	9,240	.....	.....	.....	94,264	.....	15,032	135,136
Spain	7,087	.....	.....	.....	.....	1,468	12,233	49,100	35,321	105,209
Sweden	.....	.....	.....	.....	.....	.....	.....	.....	299	299
Switzerland	4,400	.....	.....	20,192	10,334	.....	.....	.....	12,241	26,975
United Kingdom—										
England	458,074	131,960	455,946	250,500	128,457	142,308	618,071	36,676	1,300,981	3,140,513
Scotland	2,717	.....	.....	9,671	8,894	.....	.....	.....	463	12,074
Totals, Europe	$526,439	1,391,038	$4,384,715	298,064	$158,865	$213,622	$1,460,518	$157,191	$2,599,413	$9,500,763
NORTH AMERICA:										
Bermuda	$1,140	117	$220	774	$876	$832	$409	$490	$2,174	$6,141
British Honduras	736	.....	.....	21,389	20,620	602	3,469	1,111	1,731	28,269
Canada	539,496	84,093	254,837	166,601	168,399	206,490	1,766,518	92,707	1,474,078	4,502,525
Central American States—										
Costa Rica	4,491	.....	.....	48	32	1,351	4,018	1,631	1,945	13,468
Guatemala	4,078	.....	.....	1,614	1,577	2,492	7,039	1,415	8,630	25,231
Honduras	9,761	.....	.....	5,389	5,662	1,078	19,602	1,660	4,323	42,086
Nicaragua	11,553	20	85	2,975	3,656	2,344	1,042	39	10,911	29,630
Panama	127,755	6,783	8,402	15,304	13,989	7,409	137,609	10,115	38,010	343,289
Salvador	8,732	.....	.....	.....	.....	1,134	22,319	132	18,780	51,097
Mexico	339,506	215	1,256	22,567	21,630	66,157	777,984	48,019	178,613	1,433,165
Miquelon, Langley, etc.	9	2,610	7,835	1,083	792	31	.....	.....	235	8,802
Newfoundland and Labrador	21,212	53,409	141,364	105,565	93,368	959	11,397	1,065	20,564	279,929

EXPORTED TO—	Belting, Hose and Packing.	Boots.		Shoes.		Druggists' Rubber Sundries.	Tires.		All Other Manufactures of Rubber.	Total
NORTH AMERICA:	Value.	Pairs.	Value.	Pairs.	Value.	Value.	Automobile. Value.	All Other. Value.	Value.	Value.
West Indies—										
British:										
Barbados	1,686	9	42	2,055	1,855	1,558	19,391	1,998	2,853	29,393
Jamaica	7,020	12	50	1,898	1,716	2,104	109,097	12,116	11,080	143,183
Trinidad and Tobago	19,018	.....	.....	3,377	2,762	1,809	105,373	2,613	11,659	143,234
Other British	6,402	1	3	3,425	3,236	1,224	25,991	2,698	4,299	43,853
Cuba	395,524	438	1,069	60,955	48,447	99,749	1,336,233	116,859	374,330	2,372,211
Danish	1,817	.....	.....	639	710	745	6,939	466	1,722	12,399
Dominican Republic	17,730	2	5	665	814	8,842	61,684	7,795	17,925	114,795
Dutch	1,312	.....	.....	463	392	510	9,034	417	2,124	13,789
French	3,663	.....	.....	1,158	810	48	36,474	1,817	2,706	45,518
Haiti	6,529	1	6	2	2	752	13,091	1,272	3,261	24,913
Totals, North America	$1,529,170	147,710	$415,174	418,946	$381,355	$408,220	$4,474,713	$306,435	$2,191,953	$9,707,020
SOUTH AMERICA:										
Argentina	$154,869	18	$56	12,137	$9,626	$36,509	$1,649,840	$239,321	$172,952	$2,263,173
Bolivia	30,999	.....	.....	.....	.....	176	20,513	1,893	3,848	57,429
Brazil	276,328	599	2,035	33,362	24,198	37,967	455,102	15,995	156,259	967,884
Chile	319,259	602	2,347	4,582	3,938	30,365	725,876	54,815	124,466	1,261,066
Colombia	25,096	15	15	3,808	2,578	6,473	54,648	6,532	21,060	116,402
Ecuador	27,146	.....	.....	1,339	1,125	4,005	46,305	338	7,956	86,875
Falkland Islands	2,400	.....	.....	.....	.....	.....	.....	.....	.....	2,400
Guiana—										
British	2,571	1	5	5,334	3,691	1,058	29,437	939	4,963	42,664
Dutch	313	3	7	216	87	117	1,918	542	393	3,377
French	604	.....	.....	.....	.....	7	.....	.....	52	663
Paraguay	4,444	.....	.....	.....	.....	294	.....	.....	510	5,248
Peru	86,704	1,333	8,527	1,640	992	6,730	107,236	2,989	32,441	245,619
Uruguay	29,651	172	624	9,734	6,856	6,527	224,694	6,070	33,177	307,599
Venezuela	9,285	24	96	633	586	6,383	116,612	1,072	28,020	162,054
Totals, South America	$969,669	2,767	$13,712	72,785	$53,677	$136,611	$3,432,181	$330,506	$586,097	$5,522,453
ASIA:										
Aden	.....	.....	.....	.....	.....	.....	$2,536	.....	.....	$2,536
China	$56,973	6	$32	1,733	$1,557	$9,002	53,039	$2,760	$40,147	163,510
British	.....	.....	.....	120	62	.....	.....	.....	.....	62
Japanese	7	.....	.....	.....	.....	63	547	.....	1,588	2,205
Chosen	3,862	.....	.....	72	62	245	927	774	636	6,506
East Indies—										
British:										
British India	61,846	126	437	4,482	3,167	17,714	416,411	20,389	52,057	572,021
Straits Settlements	3,347	.....	.....	281	199	1,082	214,887	310	6,790	226,615
Other British	7	.....	.....	297	343	12	52,466	551	2,952	56,331
Dutch	72,554	.....	.....	896	670	5,914	347,912	16,278	37,653	480,981
French	3,950	.....	.....	.....	.....	.....	.....	.....	178	4,128
Hongkong	5,682	552	1,885	4,267	2,823	854	6,412	1,076	4,395	23,127
Japan	334,614	6,614	12,787	37,978	32,135	3,898	83,235	7,766	106,031	580,458
Russia in Asia	.....	.....	.....	2	6	.....	.....	125	1,763	1,894
Siam	37	.....	.....	.....	.....	385	16,179	157	534	17,292
Totals, Asia	$542,879	7,298	$15,141	50,128	$41,024	$39,161	$1,194,551	$50,186	$254,724	$2,137,666
OCEANIA:										
British Oceania—										
Australia	$260,924	819	$2,489	75,461	$46,747	$48,794	$819,755	$71,501	$197,118	$1,447,328
New Zealand	50,864	7,692	22,378	20,371	13,474	15,182	946,804	24,231	105,805	1,178,739
Other British	38	.....	.....	2,362	1,793	21	16,124	167	866	19,009
French Oceania	716	.....	.....	2,897	3,306	361	10,801	2,284	2,085	19,553
German Oceania	123	7	16	1,371	1,492	.....	5,211	134	1,110	8,086
Philippine Islands	150,092	575	1,783	255,496	177,261	12,858	863,727	155,055	170,982	1,531,758
Totals, Oceania	$462,757	9,093	$26,666	357,958	$244,073	$77,216	$2,662,422	$253,372	$477,966	$4,204,472
AFRICA:										
British Africa:										
West	$2,311	.....	.....	41	$48	$2	$33,470	$3,714	$1,083	$40,628
South	502,497	1,677	$5,753	46,248	34,086	9,413	693,065	29,131	81,419	1,355,364
East	10	12	45	.....	.....	.....	21,846	88	379	22,368
French Africa	.....	.....	.....	.....	.....	.....	2,399	.....	208	2,607
Liberia	.....	2	5	.....	.....	.....	.....	.....	74	79
Madagascar	303	.....	.....	.....	.....	.....	.....	.....	247	550
Morocco	.....	.....	.....	.....	.....	.....	.....	.....	125	125
Portuguese Africa	42,001	1	2	.....	.....	.....	2,506	.....	1,128	45,637
Egypt	360	.....	.....	.....	.....	.....	.....	.....	.....	360
Totals, Africa	$547,482	1,692	$5,805	46,289	$34,134	$9,415	$753,286	$32,933	$84,663	$1,467,718
Grand totals, 1917-18	$4,578,396	1,559,598	$4,861,213	1,244,170	$913,128	$884,245[3]	$13,977,671	$1,130,623	$6,194,816	$32,540,092
Grand totals, 1916-17	3,532,383	600,455	1,483,379	3,356,484	1,716,225	.....	12,330,201	2,547,652	8,265,509	29,875,349
Grand totals, 1915-16	2,986,953	720,130	1,619,260	1,976,896	1,046,102	.....	17,936,227	3,003,077	7,290,345	33,881,964
Grand totals, 1914-15	1,807,848	318,727	726,765	2,219,900	2,053,560	.....	4,963,270	576,602	3,525,486	13,653,531
Grand totals, 1913-14	2,372,887	101,361	279,206	1,634,258	834,289	.....	3,505,267	563,372	3,453,472	11,008,493
Grand totals, 1912-13	2,605,551	109,528	274,330	2,231,467	1,163,953	.....	3,943,220	611,458	3,913,036	12,511,548
		Boots and Shoes.[1]								
		Pairs.								
Grand totals, 1911-12	$2,315,484	.....	2,545,076	$1,502,890	.....	.....	$2,657,809	$546,833	$4,144,273	$11,167,289
Grand totals, 1910-11	2,163,416	.....	3,984,332	2,219,430	.....	.....	2,085,107[2]	592,470	3,886,825	10,947,248
Grand totals, 1909-10	1,960,825	.....	3,791,084	1,984,739	.....	.....	.....	.....	5,115,331	9,060,895
Grand totals, 1908-09	1,498,445	.....	2,396,435	1,292,673	.....	.....	.....	.....	3,823,956	6,615,074
Grand totals, 1907-08	1,347,775	.....	3,080,253	1,614,290	.....	.....	.....	.....	3,743,040	6,705,105
Grand totals, 1906-07	1,253,369	.....	2,310,420	1,231,898	.....	.....	.....	.....	3,729,643	6,214,910
Grand totals, 1905-06	1,221,159	.....	2,693,690	1,505,082	.....	.....	.....	.....	2,966,144	5,692,385
Grand totals, 1904-05	994,100	.....	2,390,539	1,214,342	.....	.....	.....	.....	2,572,375	4,780,817
Grand totals, 1903-04	880,010	.....	2,310,420	1,231,898	.....	.....	.....	.....	3,729,643	6,214,910
Grand totals, 1902-03	819,985	.....	2,307,401	1,056,491	.....	.....	.....	.....	2,299,875	4,176,351
Grand totals, 1901-02	634,146	.....	2,594,708	1,046,315	.....	.....	.....	.....	1,781,941	3,462,402
Grand totals, 1900-01	565,726	.....	1,459,100	724,015	.....	.....	.....	.....	1,727,527	3,017,268

[1]States separately after 1912. [2]Tires were not specifically reported before 1910-11. [3]Druggists' rubber sundries were not specifically reported before 1917-18.

OFFICIAL INDIA RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	August. 1917. Pounds.	1917. Value.	1918. Pounds.	1918. Value.
UNMANUFACTURED—*free:*				
India rubber:				
From—				
France	101,881	$39,242	.....	.....
United Kingdom	6,097,618	3,676,166	54,948	$21,312
Canada	704,438	457,242	731,466	358,456
Central America	68,235	28,734	.....	.....
Mexico	52,691	24,310	106,380	32,085
Brazil	2,728,898	992,279	1,905,367	562,559
Peru	1,174,208	522,256	.....	.....
Other South America	171,850	72,390	67,142	29,451
British East Indies	24,351,736	14,696,228	14,444,522	6,492,061
Dutch East Indies	5,681,450	3,523,573	3,449,469	1,383,705
Other countries	42,131	25,178	707,288	399,494
Totals	41,175,136	$24,057,598	21,466,582	$9,279,123
Balata *free*	354,498	187,847	73,684	44,395
Guayule	600,051	210,845	58,686	23,474
Jelutong (Pontianak)	.....	.....	1,947,716	125,847
Jelutong (Pontianak) *dutiable*	1,816,740	114,372	.....	.....
Gutta percha *free*	112,059	15,301	2,217	4,900
Totals	44,058,484	$24,585,963	23,548,885	$9,477,739
Rubber scrap	1,827,674	131,813	621,564	43,167
Totals, unmanufactured	45,886,158	$24,717,776	24,170,449	$10,520,906
MANUFACTURED—*dutiable:*				
India rubber and gutta percha	.....	$80,835	.....	$53,609
India rubber substitutes	.....	677	1,248,731	171,957

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—				
Automobile tires:				
To—				
France	.....	$768	.....	$2,351
Russia in Europe	.....	.....	.....	211
United Kingdom	.....	8,073	.....	3,100
Canada	.....	189,822	.....	110,757
Mexico	.....	48,954	.....	115,305
Cuba	.....	143,508	.....	116,376
Argentina	.....	148,793	.....	278,432
Brazil	.....	23,381	.....	6,054
Chile	.....	.....	.....	52,981
British India	.....	8,091	.....	36,784
Dutch East Indies	.....	47,141	.....	47,659
Australia	.....	45,294	.....	116,541
New Zealand	.....	58,102	.....	159,469
Philippine Islands	.....	50,147	.....	132,475
British South Africa	.....	95,752	.....	203
Other countries	.....	103,925	.....	387,891
Totals	.....	$971,751	.....	$1,566,589
All other tires	.....	59,365	.....	64,667
Scrap and old	114,886	11,488	81,629	4,265
Reclaimed	232,090	40,012	172,516	31,549
Belting, hose and packing	.....	369,669	.....	444,210
Rubber boots *pairs*	83,784	262,984	33,418	113,583
Rubber shoes *pairs*	140,552	93,877	231,161	641,529
Druggists' rubber sundries	.....	64,926	.....	68,750
Other rubber manufactures	.....	430,668	.....	640,525
Totals, manufactured	.....	$2,304,740	.....	$3,575,667
Fountain pens *number*	29,241	$19,641	13,109	$9,328

EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—				
India rubber	242,576	$144,966	229,484	$118,502
Rubber scrap	16,480	896	.....	.....
Totals unmanufactured	259,056	$145,862	229,484	$118,502
MANUFACTURED—				
India rubber	.....	$48	.....	$7,042
Substitutes, elasticon, etc	.....	3	.....	.....
Totals, manufactured	.....	$51	.....	$7,042

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—				
To—				
Alaska:				
Belting, hose and packing	.....	$19,348	.....	$8,130
Boots and shoes *pairs*	11,111	34,036	10,133	24,517
Other rubber goods	.....	6,844	.....	4,776
Totals	.....	$60,288	.....	$37,423
To—				
Hawaii:				
Belting, hose and packing	.....	$7,779	.....	$9,637
Automobile tires	.....	64,418	.....	62,334
Other tires	.....	7,155	.....	534
Other rubber goods	.....	21,700	.....	7,223
Totals	.....	$101,052	.....	$79,728
To—				
Philippine Islands:				
Belting, hose and packing	.....	$6,169	.....	$9,937
Boots and shoes *pairs*	64,856	39,837	.....	.....
Tires	.....	61,375	.....	143,153
Other rubber goods	.....	14,675	.....	83,054
Totals	.....	$122,416	.....	$236,144
To—				
Porto Rico:				
Belting, hose and packing	.....	$3,284	.....	$2,008
Automobile tires	.....	28,677	.....	47,081
Other tires	.....	1,054	.....	20
Other rubber goods	.....	7,488	.....	1,519
Totals	.....	$40,503	.....	$50,628

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	July. 1917. Pounds.	1917. Value.	1918. Pounds.	1918. Value.
UNMANUFACTURED—*free:*				
Balata, crude	3,936	$3,092	.....	.....
Rubber and gutta percha crude caoutchouc or india rubber	951,308	552,707	1,856,041	$763,024
Rubber, recovered	182,891	29,496	191,277	33,055
Hard rubber, in sheets and rods	14,272	9,456	825	867
Rubber substitute	33,036	4,174	91,381	19,384
Rubber, powdered and rubber or gutta percha waste	105,362	7,946	411,918	31,486
Rubber thread, not covered	1,708	2,516	2,588	3,822
Totals	1,292,513	$609,387	2,554,030	$851,638
Chicle	313,807	143,879	49,018	34,075
MANUFACTURED—*dutiable:*				
Boots and shoes	.....	$18,004	.....	$15,176
Belting	.....	6,094	.....	18,912
Waterproof clothing	.....	41,467	.....	20,002
Hose, lined with rubber	.....	13,879	.....	10,830
Mats and matting	.....	316	.....	65
Packing	.....	8,104	.....	9,298
Tires of rubber for all vehicles	.....	268,112	.....	101,499
Rubber cement and all manufactures of india rubber and gutta percha—n. o. p.	.....	88,967	.....	113,737
Hard rubber sheets	14,272	9,456	.....	.....
Hard rubber, unfinished, in tubes for fountain pens	.....	16	.....	14,231
Webbing over one inch wide	.....	17,440	.....	27,414
Totals	14,272	$471,855	.....	$331,164

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

	July. 1917. Produce of Canada. Value.	1917. Reexports of Foreign Goods. Value.	1918. Produce of Canada. Value.	1918. Reexports of Foreign Goods. Value.
MANUFACTURED—				
Belting	$6,803	.....	$9	.....
Hose	3,719	.....	24,103	.....
Boots and shoes	33,822	.....	37,321	.....
Clothing	815	.....	3,659	.....
Tires	59,100	4,771	73,089	$3,596
Waste	56,427	.....	2,385	.....
All other—n. o. p.	5,239	567,193	9,384	11,726
Totals	$165,925	$571,964	$149,950	$15,322
Chicle	156,005	.....	85,849	.....

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

	September. 1917. Pounds.	1917. £.	1918. Pounds.	1918. £.
UNMANUFACTURED—				
Crude rubber	10,533,300	1,294,030	8,670,600	954,006
Waste and reclaimed rubber	48,000	1,437	.....	.....
Gutta percha	296,100	53,967	813,900	164,358
Totals	10,877,400	1,349,434	9,484,500	1,118,364
MANUFACTURED—				
Boots and shoes *doz. pairs*	7,419	13,869	208	792
Carriage tires and tubes	.....	1,312	.....	.....
Automobile tires and tubes	.....	53,758	.....	53,019
Motorcycle tires and tubes	.....	380	.....	2,415
Bicycle tires and tubes	.....	720	.....	.....
Insulated wire	.....	1,309	.....	.....
Totals	7,419	70,348	208	56,226

EXPORTS.

	September.			
	1917.		1918.	
UNMANUFACTURED—	POUNDS.	£.	POUNDS.	£.
Waste and reclaimed rubber	1,373,200	24,079	263,300	11,363
MANUFACTURED—				
Waterproof clothing	.....	60,976	.....	43,903
Boots and shoes.....*doz. pairs*	8,824	9,322	7,809	11,813
Insulated wire	.....	3,959	.....	8,823
Submarine cables	.....	.....	.....	45,214
Carriage tires and tubes	.....	8,552	.....	14,274
Automobile tires and tubes	.....	114,923	.....	144,778
Motorcycle tires and tubes	.....	12,452	.....	11,021
Bicycle tires and tubes	.....	32,323	.....	13,008
Other manufactures of india rubber	.....	106,839	.....	110,838
Totals	8,824	349,316	7,809	403,672

EXPORTS—FOREIGN AND COLONIAL.

UNMANUFACTURED—				
Crude rubber	4,558,100	577,225	2,180,800	241,914
Gutta percha	24,200	4,037	.....	.....
Totals	4,582,300	581,262	2,180,800	241,914
MANUFACTURED—				
Boots and shoes.....*doz. pairs*	19	84	.....	.....
Waterproof clothing	.....	40	.....	.....
Insulated wire	.....	9,382	.....	.....
Automobile tires and tubes	.....	23,049	.....	2,760
Motorcycle tires and tubes	.....	393	.....	.....
Totals	.....	32,948	.....	2,760

THE MARKET FOR RUBBER SCRAP.

Copyright, 1918.

NEW YORK.

THE tendency is upward, at least in some lines. The fact that makers of auto tires under six inches can now make seventy-five per cent of their former output, instead of the fifty per cent to which they have been limited for some time, is expected to have an influence on scrap prices. Shipping facilities, it is thought, will be somewhat better, which will improve the general demand.

BOOTS AND SHOES.—An increase in the movement is noticeable at, say, around, 8¾ cents, while really good lots are worth 9 cents, c. i. f. mills.

INNER TUBES.—A very light demand with prices practically unchanged.

MECHANICALS.—As dull as ever, prices the same.

TIRES.—B white tires are selling at 5¾ and even 6 cents. Mixed tires cannot be had now for less than 5¼ cents.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

NOVEMBER 25, 1918.

Prices subject to change without notice.

BOOTS AND SHOES.			
Arctic tops	*lb.*	$0.01½ @	.01¾
Boots and shoes	*lb.*	.08¼ @	.08½
Trimmed arctics	*lb.*	.07 @	.07¼
Untrimmed arctics	*lb.*	.06 @	.06¼
HARD RUBBER.			
Battery jars, black compound	*lb.*	.02 @	
No. 1, bright fracture	*lb.*	.25 @	.26
INNER TUBES.			
No. 1, old packing	*lb.*	.22 @	.22½
new packing	*lb.*	.24 @	.24½
No. 2	*lb.*	.11¼ @	.11¾
Red	*lb.*	.11¼ @	.11¾
MECHANICALS.			
Black scrap, mixed, No. 1	*lb.*	.05¼ @	
No. 2	*lb.*	.04 @	
Car springs	*lb.*	.05 @	
Heels	*lb.*	.04 @	
Horse-shoe pads	*lb.*	.04 @	
Hose, air-brake	*lb.*	.05½ @	.05¾
fire, cotton lined	*lb.*	.02½ @	
garden	*lb.*	.02⅛ @	
Insulated wire stripping, free from fiber	*lb.*	.04 @	
Matting	*lb.*	.01½ @	
Packing	*lb.*	.01½ @	
Red scrap, No. 1	*lb.*	.09½ @	.10
No. 2	*lb.*	.06 @	.06½
White scrap, No. 1	*lb.*	.12 @	.12¼
No. 2	*lb.*	.09 @	
TIRES.			
PNEUMATIC:			
Auto peelings, No. 1	*lb.*	.09¼ @	
No. 2	*lb.*	.06½ @	.06¾
Bicycle	*lb.*	.04½ @	
Standard white auto	*lb.*	.05½ @	
Standard mixed auto	*lb.*	.05 @	
Stripped, unguaranteed	*lb.*	.04 @	
White, G. & G.	*lb.*	.05¾ @	
M. & W. and U. S.	*lb.*	.05¾ @	
B.	*lb.*	.05¾ @	.06
SOLID:			
Carriage	*lb.*	.05¼ @	
Irony	*lb.*	.02 @	
Truck	*lb.*	.05¼ @	

THE MARKET FOR COTTON AND OTHER FABRICS.

Copyright, 1918.

NEW YORK.

DUE to the signing of the armistice, to the decision of the committee not to fix prices, and to the Government's forbidding domestic and foreign short selling there have been violent fluctuations during the past month in the New York cotton market. On October 30, middling uplands was 30.75 cents, on November 25, it was 29.75 cents.

SEA ISLAND COTTON.—Market continues very quiet, with little or no cotton changing hands, such little demand as there is being at lower figures than owners are willing to accept. Every now and then small distress lots are offered, indicating that it would pay mills to send orders in force for a few days, provided they need any cotton. Average extra choice sells for 70 cents at New York.

COTTON FABRICS.—The market has been lifeless with no change in prices. Present prices on hose and belting duck will remain the same until January 1. While Government business has subsided, the mills are sold ahead on regular orders to next July, and it is not reasonable to look for change in prices for the next six months.

NEW YORK QUOTATIONS.

NOVEMBER 25, 1918.

Prices subject to change without notice.

AIRPLANE AND BALLOON FABRICS:		
Wamsutta, S. A. I. L. No. 1, 40-inch	*yard*	None
No. 4, 38½-inch		$0.47½ @
ASBESTOS CLOTH:		
Brake lining, 2½ lbs. sq. yd., brass or copper insertion	*lb.*	.85 @
2¼ lbs. sq. yd., brass or copper insertion	*lb.*	.90 @
BURLAPS:		
32— 7-ounce	*100 yards*	11.16 @
32— 8-ounce		11.38 @
40— 7½-ounce		13.25 @
40— 8-ounce		13.40 @
40—10-ounce		16.20 @
40—10½-ounce		16.50 @
45— 7½-ounce		None
45— 8-ounce		None
45— 9½-ounce		18.00 @
48—10-ounce		22.50 @
DRILLS:		
38-inch 2.00-yard	*yard*	.30½ @
40-inch 2.47-yard		.25⅛ @
52-inch 1.90-yard		.32½ @
52-inch 1.95-yard		.31¾ @
60-inch 1.52-yard		.40 @
DUCK:		
CARRIAGE CLOTH:		
38-inch 2.00-yard enameling duck	*yard*	.31 @
38-inch 1.74-yard		.35⅛ @
72-inch 16.66-ounce		.66⅝ @
72-inch 17-21ounce		.68⅞ @
MECHANICAL:		
Hose	*pound*	†.62¼
40-inch, 10-ounce		†.64¾
Belting		†.62¾
HOLLANDS, 40-INCH:		
Acme	*yard*	.30 @
Endurance	*yard*	.33 @
Penn	*yard*	.34 @

OSNABURGS

40-inch 2.35-yard	yard	.25½	@
40-inch 2.48-yard		.25¼	@
37½-inch 2.42-yard		.25⅛	@

RAINCOAT FABRICS:

COTTON:

Bombazine 64 x 60 water-repellent	yard	*.23	
60 x 48 not water-repellent		*.20½	
Cashmeres, cotton and wool, 36-inch, tan		.85	@
blue and black		.90	@
Twills 64 x 72		*.30	@ .32½
64 x 102		*.35	@ .37½
Twill, mercerized, 36-inch, tan and olive		.34½	@
blue and black		.35½	@
Tweed		.45	@ 1.00
Tweed, printed		.18½	@ .25
Plaids 60 x 48		*.21½	@
56 x 44		*.20½	@
Repp		.37½	@ .45
Surface prints 60 x 48		*.21½	@
64 x 60		*.23½	@

IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING —PLAIN AND FANCIES:

63-inch, 3¼ to 7½ ounces	yard	1.15	@ 3.25
36-inch, 2¾ to 5 ounces		.80	@ 1.85

IMPORTED PLAID LINING (UNION AND COTTON):

63-inch, 2 to 4 ounces	yard	.90	@ 1.70
36-inch, 2 to 4 ounces		.52½	@ 1.05

DOMESTIC WORSTED FABRICS:

36-inch, 4½ to 8 ounces	yard	.75	@ 2.00

DOMESTIC WOVEN PLAID LININGS (COTTON):

36-inch, 3¾ to 5 ounces	yard	.27½	@ .50

SHEETINGS:

JACKET:

Delaware	yard	.30	@
Schuylkill	yard	.32	@

SILKS:

Canton, 38-inch	yard	.39	@
Plain		.40	@
Schappe, 36-inch		.52½	@

STOCKINETTES:

COTTON, 52-INCH:

D—14-ounce	yard	*.85	@ .90
E—11½-ounce		*.60	@ .65
F—14-ounce		*.85	@ .90
G— 8-ounce		*.75	@ .80
H—11-ounce		*.70	@ .85
I— 9-ounce		*.60	@ .65
Knitaback	pound	*1.75	@ 2.00

WOOL, 52-INCH:

A—14-ounce	yard	*1.75	@
B—14-ounce		*2.25	@
C—14-ounce		*2.50	@

TIRE FABRICS:

17¼-ounce Sea Island, combed	square yard	1.60	@ 1.70
17¼-ounce Egyptian, combed		1.30	@ 1.40
17¼-ounce Egyptian, carded		1.20	@ 1.30
17¼-ounce Peelers, combed		1.10	@ 1.15
17¼-ounce Peelers, carded		1.00	@ 1.05

*Nominal.
†Government prices until January 1, 1919.

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

SEA ISLAND COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO NOVEMBER 1, 1918.

	Receipts. 1918-19.	1917-18.
Stock on hand, August 1, 1918—		
Savannah, 1,043; Charleston, 1 bales	15,764	1,044
Received at Savannah (gross)	2,304	6,461
Received at Charleston	1,680	1,436
Received at Jacksonville	2,110	6,899
Totals	21,858	15,840
Less exports	9,938	10,149
Stock November 1, 1918—		
Savannah, 10,111; Charleston, 1,809	11,920	5,691
Crop in sight at all ports to date	6,094	14,746

EXPORTS.

From—	To Great Britain.	South. Mills.	North. Mills.	Total.
Savannah	144	6,646	650	7,440
Charleston	....	388	....	388
Jacksonville	....	2,110	....	2,110
Brunswick	....	....	....	....
Norfolk	....	....	....	....
Totals	144	9,144	650	9,938
1918-19	....	9,288	861	10,149
	[1]144	[2]144	[2]211	[2]211

[1]Increase. [2]Decrease.
(*Compiled by John Malloch & Co., Savannah, Georgia.*)

EGYPTIAN COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO AUGUST 28, 1918.

To—	1918-1919.	1917-1918.	1916-1917.
Liverpool bales	17,158	8,147	6,062
Manchester	2,317	4,882	.....
Other United Kingdom ports	1,130	.....	.....
Total shipments to Great Britain	20,605	13,029	6,062
To—			
France, Spain 3,535, Italy 10,933, Switzerland, Norway, Sweden	3,535 / 10,933	..... / 3,997	341 / 1,848
Russia	.....	.....	100
Total shipments to Continent	14,468	3,997	2,289
To—			
United States	.....	.....	1,133
India, Japan 3,550	3,550	.....	100
Total shipments to all parts	38,623	17,026	9,584
Total crop (interior gross weight), [1]cantars	.....	.....	5,126,199

[1] Cantar equals 98 pounds.
(*Compiled by Davies, Benachi & Co.*)

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

Copyright, 1918.

NEW YORK.

HESITATION and dullness were the characteristics of the base metal market. The government and the copper producers have agreed that the maximum price for copper shall remain at 26 cents for the rest of the year; it is said that orders have been accepted at lower figures for delivery next year. The War Industries Board has announced a universal control of tin; in this country the metal can only be obtained from the American Iron and Steel Institute. Import licenses are to be issued only to the United States Steel Products Co., which puts importers in the United States and Canada out of business until further notice. The Lead Producers Committee continues its control of lead and the output is oversold. Antimony, which has been dull for some time, has fallen still further.

The market for rubber chemicals is in a state of uncertainty, there is a little depression, but, with the coming of peace, a considerable revival is hoped for.

ANILINE OIL.—There is a very strong demand, which producers are able to satisfy, but there are no large stocks on hand.

BARYTES.—Consumption continues to be about half the former average, but the cost of production is still so high that prices are unchanged.

CARBON TETRACHLORIDE.—As government control has not yet ceased, this product is practically unobtainable in the open market.

LITHOPONE.—Manufacturers, who have for some time been able to sell easily all they could make and at very good prices, are looking forward to a large export trade. Stocks on hand, as reported to the Lithopone Institute, are less than 25 per cent of what they used to be.

SULPHUR FLOUR.—There are many inquiries for delivery next year, the tendency seems to be toward lower prices on account of the coming of peace.

SULPHURIC ACID.—Producers are still unable to meet the demand, as there has as yet been no relaxation of government regulation.

TALC.—Many months will probably pass before any imported talc is obtainable in this country and there is a strong demand for the domestic product.

TAR AND PITCH.—The demand has weakened somewhat, which is not quite what had been expected on the signing of the armistice.

WHITING.—Producers can still scarcely meet all the demands for government work. Whiting is not easy to get in the open market, and yet there have been some cancellations of orders by the rubber trade.

ZINC OXIDE.—The market continues quiet and prices unchanged.

NEW YORK QUOTATIONS.

NOVEMBER 25, 1918.

Prices subject to change without notice.

ACCELERATORS, ORGANIC.				
Accelerator N. C. C.	lb.	50	@	
Accelerene	lb.	*$2.62	@	
Accelemal	lb.	*.80	@	
Accelemal No. 2	lb.	*.80	@	
Accelerator No. 1	lb.	*.60	@	
Aldehyde ammonia crystals	lb.	1.00	@	1.10
Aniline oil	lb.	.29	@	
Annex	lb.	*1.25	@	
Duplex	lb.	*.75	@	
Excellerex	lb.	*.85	@	
Hexamethylenexamine (Vitalin)	lb.	*.65	@	
Hexamethylene tetramine (powdered)	lb.	1.05	@	1.20
Paraphenylenediamine	lb.	3.50	@	4.00
Tensilite	lb.	*.60	@	
Thiocarbanilide	lb.	*.50	@	
Velocite	lb.	*.50	@	
Vitaminex	lb.	*.65	@	
ACCELERATORS, INORGANIC.				
Lead, dry red	lb.	.11¼	@	
sublimed blue	lb.	.09¼	@	
sublimed white	lb.	.09¼	@	
white, basic carbonate	lb.	.10	@	.10½
white, basic sulphate	lb.	.09¼	@	.09½
Lime, flour	lb.	.01½	@	.02
Litharge, domestic	lb.	.12¾	@	.14
English	lb.	.15	@	.16
sublimed	lb.	.11	@	
Magnesium, carbonate	lb.	.14	@	
calcined, heavy (Thistle brand)	lb.	.12	@	
light (Manhattan brand)	lb.	.50	@	
Magnesium oxide	lb.	.06½	@	
Magnesite, calcined, powdered	ton	50.00	@	65.00
ACIDS.				
Acetic, 28 per cent (bbls.)	cwt.	4.91	@	
Glacial, 99 per cent (carboys)	cwt.	19.50	@	
Cresylic, 97-99 per cent, straw color	gal.	1.12	@	
95 per cent, dark	gal.	1.02	@	
Muriatic, 20 degrees	cwt.	2.05	@	2.30
Nitric, 36 degrees	cwt.	6.60	@	6.85
Sulphuric, 66 degrees	cwt.	2.00	@	
ALKALIES.				
Caustic soda, 76 per cent (bbls.)	lb.	.08	@	
Soda ash (bbls.)	lb.	.04½	@	
COLORS.				
Black:				
Bone, powdered	lb.	.05	@	
granulated	lb.	.09	@	
Carbon, black (sacks, factory)	lb.	.14	@	
Ivory black	lb.	.16	@	.30
Lampblack	lb.	.15	@	.45
Oil soluble aniline	lb.	*.75	@	1.50
Rubber black	lb.	.07	@	
Blue:				
Cobalt	lb.	.25	@	.35
Prussian	lb.	*1.25	@	
Ultramarine	lb.	.22	@	.50
Brown:				
Iron oxide	lb.	.03	@	.04
Ochre, domestic	lb.	.01½	@	.04
imported	lb.	.05¾	@	
Sienna, Italian, raw and burnt	lb.	.06	@	
Umber, Turkey, raw and burnt	lb.	.05	@	.06
Green:				
Chrome tile	lb.	*.15	@	
Oxide of chromium (casks)	lb.	*.85	@	
India rubber	lb.	*.75	@	
Red:				
Antimony, crimson, sulphuret of (casks)	lb.	.50	@	
crimson, "Mephisto" (casks)	lb.	.60	@	
Antimony, golden, sulphuret of (casks)	lb.	.25	@	
golden, "Mephisto" (casks)	lb.	.30	@	
golden, sulphuret, States brand, 16-17%	lb.	.28	@	
red sulphuret, States brand	lb.	.25	@	
vermilion sulphuret	lb.	.55	@	
Arsenic, red sulphide	lb.	.42	@	
Indian, pure bright	lb.	.08	@	.12
Iron oxide, reduced grades	lb.	.12	@	
pure bright	lb.	.16	@	
Oil soluble aniline, red	lb.	*2.50	@	3.00
orange	lb.	*2.00	@	
Oxymony	lb.	.18	@	
Venetian	lb.	.02½	@	.06
Vermilion, English, pale, medium, dark	lb.	2.00	@	2.10
White:				
Aluminum bronze powder	lb.	.80	@	
C. P. (cases)	lb.	1.00	@	
superior	lb.	1.25	@	
Lithopone, imported	lb.	None		
domestic	lb.	.08	@	.08¼
Ponolith (carloads, factory)	lb.	.08	@	.08¼
Rubber makers' white	lb.	.08	@	.08¼
Zinc oxide, Horsehead (less carload, factory):				
"XX red"	lb.	.10½	@	
"Special"	lb.	.11	@	
French process, red seal	lb.	.13¼	@	
green seal	lb.	.13¾	@	
white seal	lb.	.14½	@	
(States brand)	lb.	.10½	@	
Zinc sulphide, pure	lb.	None		
Yellow:				
Cadmium, tri-sulphate	lb.	*2.68	@	
sulphide	lb.	1.80	@	
Chrome, light and medium	lb.	.28	@	.32
India rubber	lb.	*1.00	@	
Ochre, light or dark	lb.	.05	@	.06
Oil soluble aniline	lb.	*2.00	@	
Zinc chromate	lb.	*.50	@	
COMPOUNDING INGREDIENTS.				
Aluminum flake (bbls. factory. Less 5% carload)	ton	26.00	@	
(sacks factory. Less 5% carloads)	ton	26.00	@	
Aluminum oxide	lb.	*.18	@	
Ammonia carbonate, powdered	lb.	.14½	@	.15
lumps	lb.	.13	@	.14
Asbestine (bags)	ton	25.00	@	
Asbestos (bags)	ton	*25.00	@	35.00

Barium, carbonate, precipitated	lb.	.03	@	
sulphide, precipitated	lb.	.08	@	
Barytes, pure white	ton	35.00	@	
off color	ton	25.00	@	
uniform floated	ton	35.00	@	
Basofor	lb	.05½	@	
Blanc fixe	lb.	*.05½	@	.06
Bone ash	lb.	.06	@	
Chalk, precipitated, extra light	lb.	.05	@	.05¼
precipitated, heavy	lb.	.04	@	.04½
China clay, domestic	ton	15.00	@	22.00
imported	lb.	.02½	@	
Cotton linters, clean mill run, f. o. b. factory	bale	None		
Fossil flour	ton	60.00	@	65.00
Glue, high grade	lb.	.35	@	.50
medium	lb.	.25	@	.35
low grade	lb.	.15	@	.20
Graphite, flake (400 pound bbl.)	lb.	.10	@	.25
amorphous	lb.	.04	@	.08
Ground glass FF. (bbls.)	lb.	*.03	@	
Infusorial earth, powdered	ton	60.00	@	
bolted	ton	65.00	@	
Mica, powdered	lb.	.03½	@	.05
Plaster of Paris	lb.	2.00	@	3.00
Plastigum	lb.	*.15	@	
Pumice stone, powdered (bbl.)	lb.	.05	@	.08
Rotten stone, powdered	lb.	.02½	@	.04½
Rubber flux	lb.	*.15	@	
Rubkide	lb.	*.38	@	
Silex (silica)	ton	22.00	@	40.00
Soapstone, powdered, domestic	ton	22.50	@	25.00
imported	ton	None		
Starch, powdered corn (carload, bbls.)	cwt.	4.27	@	
(carload, bags)	cwt.	4.05	@	
Talc, American	ton	20.00	@	40.00
French	ton	None		
Tripoli earth, powdered	lb.	.01½	@	
Tyre-lith	ton	80.00	@	
Walpole rubber flux (factory)	lb.	.06	@	
Whiting, Alba (carloads)	cwt.	.90	@	1.00
commercial	cwt.	1.30	@	1.35
gilders	cwt.	1.35	@	1.40
Paris, white, American	cwt.	1.50	@	1.75
English cliffstone	cwt.	1.75	@	2.00
Wood pulp XXX	ton	*40.00	@	45.00

MINERAL RUBBER.

Gilsonite	ton	55.00	@	57.50
Genasco (carloads factory)	ton	55.00	@	57.00
M. R.	ton	*65.00	@	
M. R. X.	ton	100.00	@	
Liquid rubber	lb.	*.14	@	.15
Pioneer, carload, factory	ton	50.00	@	
less carload, factory	ton	*55.00	@	
Richmond	ton	75.00	@	
No. 64	ton	65.00	@	
Refined Elaterite	ton	175.00	@	
Raven M. R.	ton	60.00	@	80.00

OILS.

Corn, crude (bbls.)	lb.	.18	@	.18½
refined	lb.	.21½	@	
Glycerine (C. P. drums)	lb.	.58	@	.59
Glycerole	lb.	*.12	@	
Linseed, raw (carloads)	gal.	1.60	@	
Linseed compound	gal.	*.85	@	
Palm	lb.	.32	@	.50
Paraffin	gal.	.40	@	.41
Petrolatum	lb.	*.08	@	
Petroleum grease	lb.	*.06½	@	
Pine, steam distilled	gal.	.67	@	
Pine tar	gal.	.36	@	
Rapeseed, refined	gal.	1.63	@	
blown	gal.	1.575	@	
Rosin	gal.	.88	@	
Soya bean, crude (f. o. b. Pacific Coast)	lb.	.15¼	@	
Tar, commercial (cases)	gal.	.35	@	.36
Noreacol No. 30	gal.	.65	@	

SOLVENTS.

Acetone (drums)	lb.	.25½	@	.25¾
methyl (bbls.)	gal.	*1.50	@	
Benzol, C. P. (drums)	gal.	.22	@	.27
90 per cent.	gal.	.22	@	.27
Beta-naphthol, resublimed	lb.	1.20	@	1.25
ordinary grade	lb.	.75	@	.80
Halowax oil No. 1000 (f. o. b. Wyandotte)	lb.	*.30	@	
No. 1001 (f. o. b. Wyandotte)	lb.	*.35	@	
Naphtha, motor gasoline (steel bbls.)	gal.	.24½	@	
73 @ 76 degrees (steel bbls.)	gal.	None		
68 @ 70 degrees (steel bbls.)	gal.	None		
Solvent	gal.	.21	@	
V. M. & P. (steel bbls.)	gal.	.23½	@	
Toluol, pure	gal.	1.50	@	1.55
Turpentine, spirits	gal.	.85	@	.86
wood	gal.	.70	@	.76
Venice	lb.	*.65	@	.66
Osmaco reducer	gal.	*.35	@	
Zylol, pure	gal.	.45	@	.50
commercial	gal.	.30	@	.35

SUBSTITUTES.

Black	lb.	.11	@	.18
White	lb.	.13	@	.25
Brown	lb.	.18	@	.24
Brown factice	lb.	.10	@	.23
White factice	lb.	.14	@	.24
Cordex	lb.	*.45	@	
Energine	lb.	*.30	@	
Paragol soft and medium (carloads)	cwt.	17.08	@	
hard	cwt.	16.58	@	
Toughenite	lb.	*.40	@	

VULCANIZING INGREDIENTS.

Carbon, bisulphide (drums)	lb.	.08	@	.10
tetrachloride (drum)	lb.	.50	@	.60
Lead, black hyposulphite (Black Hypo)	lb.	.47	@	
Orange mineral, domestic	lb.	.14¼	@	
Sulphur chloride (drums)	lb.	.09½	@	.10
Sulphur, flour, Brooklyn brand (carloads)	cwt.	3.40	@	
pure soft (carloads)	cwt.	3.40	@	
superfine (carloads, factory)	cwt.	2.50	@	

(See also Colors—Antimony)

RESINS AND PITCHES.

Cantella gum	lb.	.75	@	
Pine tar, retort	bbl.	16.00	@	
kiln	bbl.	15.00	@	
Pitch, Burgundy	lb.	.08	@	
coal tar	ton	18.00	@	
pine tar	bbl.	9.00	@	
ponto	lb.	.14	@	
Resin, Pontianak, refined	lb.	None		
granulated	lb.	None		
fused	lb.	None		
Rosin, K	bbl.	17.30	@	
powdered	lb.	.12	@	
Shellac, fine orange	lb.	.78	@	.80
Tar, kiln	bbl.	13.00	@	13.50
retort	bbl.	14.00	@	14.50

WAXES.

Wax, beeswax, white	lb.	.78	@	.80
ceresin, white	lb.	.20	@	.22
carnauba	lb.	.60	@	.90
ozokerite, black	lb.	.58	@	.60
green	lb.	.78	@	.80
montan	lb.	*.40	@	
substitute	lb.	.20	@	.30
paraffin, crude 118/120 m. p. (cases)	lb.	.09¼	@	.10
124/126 m. p. (cases)	lb.	.10½	@	.11
refined 128 m. p. (cases)	lb.	.12¾	@	
130 m. p. (cases)	lb.	.15	@	.16

*Nominal.

THE GRACE COMPANY IN THE FAR EAST.

Grace Brothers, Limited, importers of crude rubber, London, England, have acquired an interest in Lee, Hodges & Co., an old-established house of Colombo, Ceylon, which gives increased facilities for the purchase of Ceylon commodities and for the export of the company's English and American products to the markets of Ceylon and India.

A new agency has also been established by Grace Brothers, Limited, London, at Freetown, Sierra Leone, British West Africa, conducted as Grace Brothers & Co., Limited, with H. T. Wittington in charge as agent. Business will also be conducted in the British and French colonies north and south of this point.

(C) Underwood & Underwood, N. Y.

ORDNANCE YARD, VINCENNES, FRANCE, WHERE TIRES ARE REPAIRED AND STORED FOR FURTHER USE.

INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC GUTTA-PERCHA

Vol. 59. DECEMBER 1, 1918. No. 3.

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